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JOHN MANVILLE
10100 W. UTE AVENUE
LITTLETON, CO 80127

EXAMINER	
JARRETT, SCOTT L	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	09/788,470	REINSMA ET AL.
	Examiner	Art Unit
	Scott L. Jarrett	3623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 28 June 2007.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-92 is/are pending in the application.

4a) Of the above claim(s) 44-79 and 90-92 is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-43 and 80-89 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1. This **Final** Office Action is in response to Applicant's remarks filed June 28, 2007. Currently Claims 1-43 and 80-89 are pending, claims 44-79 and 90-92 being previously withdrawn.

Response to Arguments

2. Applicant's arguments filed June 28, 2007 have been fully considered but they are not persuasive.

In response to applicant's argument that there is no suggestion to combine the references (Paragraph 2, Page15; Paragraph 3, Page 21; Last Paragraph, Page 28; Paragraph 2, Page 32; Paragraph 4, Page 34; Last Paragraph, Page 35; Paragraph 1, Page 38), the examiner notes that an obviousness determination is not the result of a rigid formula disassociated from the consideration of the facts of a case. Indeed, the common sense of those skilled in the art demonstrates why some combinations would have been obvious where others would not. See KSR Int'l Co. v. Teleflex Inc., 550 U.S. __ (2007) ("The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.").

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning (Paragraph 3, Page 15; Paragraph 4, Page 21; Paragraph 2, Page 29; Paragraph 3, Page 32; Last Paragraph,

Page 34; Paragraph 1, Page 36; Paragraph 2, Page 38) , it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., Claim 88, "the fees charged in the present application are directly and electronically charged through an online transaction", Last Paragraph, Page 38) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., Paragraph 3, Page 4; selecting a set of items based on calculated *total first values*, is only recited in claims 33-43 and not in not recited in claims 1-32 and 80-89) are not recited in the rejected claim(s). Although the claims are interpreted in light of the

specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In response to the Applicant's argument that the prior art of record fails to teach or suggest each and every feature of the claimed invention the examiner respectfully disagrees.

Specifically, in response to the Applicant's argument that the prior art of record fails to teach or suggest *selecting a set of items based* on the calculated set of value or *code for selecting a set of items* based on the calculated set of value (Last Paragraph, Page 3; Paragraphs 2-3, Page 4; Paragraphs 1-2, 4, Page 5; Paragraphs 1-2, 4, Page 6) the examiner respectfully disagrees.

Initially it is noted that the features upon which applicant relies (i.e., *the implication that the system/code automatically selects* a set of items that satisfy a set of first/second/total values vs. a person, in conjunction with the computer, selecting the set of items through the use/application of the system) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Wakelam et al. teach a computer-implemented method (i.e. code running on a computer causing the computer to perform the method steps) of selecting items for a project within criteria comprising (Column 2, Lines 1-10; Figures 1, 1a, 3, 6a-6b):

- inputting project information via a computer interface (i.e. code), including project criteria (parameters, requirements, codes, rules, engineering formulas, regulations, client requirements, material specifications, etc.; Column 2, Lines 1-10, 48-60; Column 8, Lines 16-37, 55-68; Column 10, Lines 6-56; Column 20, Lines 12-29; Figure 1a, Element 151, 152, 154; Figure 3, Element 300; Figures 1b, 4a-4d, 4f-4i);

- determining, with a computer, sets of items (elements, massing elements, lower-tier elements, components, materials, etc.) based on the project information that meet the criteria (i.e. the user and/system select set of items, e.g. building materials, dimensions, requirements, constraints, etc.; Column 3, Lines 35-46; Column 4, Lines 1-8, 60-68; Column 6, Lines 17-22; Column 12, Lines 11-35; Column 14, Lines 15-55; Column 19, Lines 1-37; Figure 3, Element 302; Figure 6a);

- calculating (via the code, program, application, routine, etc.) for each set of items a set value (i.e. first/second values; cost, price, schedule, item clashes, material quantities, code check, budget check, etc.; Column 3, Lines 12-46; Column 4, Lines 38-59; Column 5, Lines 1-15, 41-68; Column 14, Lines 15-55; Figure 6a);

- selecting a set of items based on the calculated set of values (design, building model, building configuration, clash detection, rattling the box, etc.; Column 17, Lines 35-68; Column 18, Lines 1-49; Column 19, Lines 1-37; Figure 3, Elements 302, 308); and

- displaying, via a graphic user interface (i.e. code) to a user the selected items that meet the project criteria (building model, building configuration, design; Column 4, Lines 1-14; Column 19, Lines 1-37; Figure 1, Elements 169, 170, 172, 174, 176, 178-179; Figure 1a, Element 160; Figures 5a-5l; Figure 6a, Element 520); - code for determining sets of items that may be used in constructing the project (Column 3, Lines 12-46; Column 4, Lines 38-59; Column 5, Lines 1-15, 41-68; Column 14, Lines 15-55; Figure 6a);

- code for calculating a total first values for each of the sets of items (Column 3, Lines 12-46; Column 4, Lines 38-59; Column 5, Lines 1-15, 41-68; Column 14, Lines 15-55; Figure 6a);

- code for selecting a set of items based on the calculated total first values (Column 3, Lines 12-46; Column 4, Lines 38-59; Column 5, Lines 1-15, 41-68; Column 14, Lines 15-55; Column 17, Lines 35-68; Column 18, Lines 1-49; Column 19, Lines 1-37; Figure 3, Elements 302, 308; Figure 6a-6b); and

- code for displaying to a user the selected set of items (Column 4, Lines 1-14; Column 19, Lines 1-37; Figure 1, Elements 169, 170, 172, 174, 176, 178-179; Figure 1a, Element 160; Figures 5a-5l; Figure 6a, Element 520).

Further in response to Applicant's request for further clarification as to how Wakelam et al. teaches the determining and calculating limitations of Claims 1 and 33 (Paragraph 3, Page 5), the examiner provides the following.

Wakelam et al. teach a computer implemented automated building design and modeling system wherein the system automatically designs a building that meets a plurality of user provided building criteria (number of floors, size, etc.). The automated building design process comprises the system determining (selecting) sets of items (lights, cladding, electrical, HVAC, glazing types, etc.) that meet the criteria; calculating a plurality of items a plurality of values (cost, schedules, number, quantity, size, shape, placement, location, etc.); and selecting (assembling, choosing, etc.;) and displaying the items (building elements) based on the calculated values (e.g. the system assembles a particular building design based on the building criteria and a plurality of calculated/determined values (costs, schedules, quantities, etc.) which is then presented to the user – the user/owner then approves the project or makes changes to the various parameters at which point the system automatically performs the determining, calculating and selecting steps; Figures 2f-2k, 3, 6a, 6b).

More specifically, Wakelam et al. teach a computer program product (computer-implement method, system comprising computer elements such as code, processor, database, etc.) for selecting items for a project within criteria:

(A) inputting a plurality of project information into the software program, including project criteria;

(B) determining (selecting, generating, assembling, choosing, calculating, designing, etc.), with a computer, sets of items based on the project information that meet criteria;

(C) calculating for each set of sets (first/second/total) a set value(s);

(D) selecting sets of items based on the calculated set of values; and

(E) displaying to a user the selected set of items that meet the project criteria.

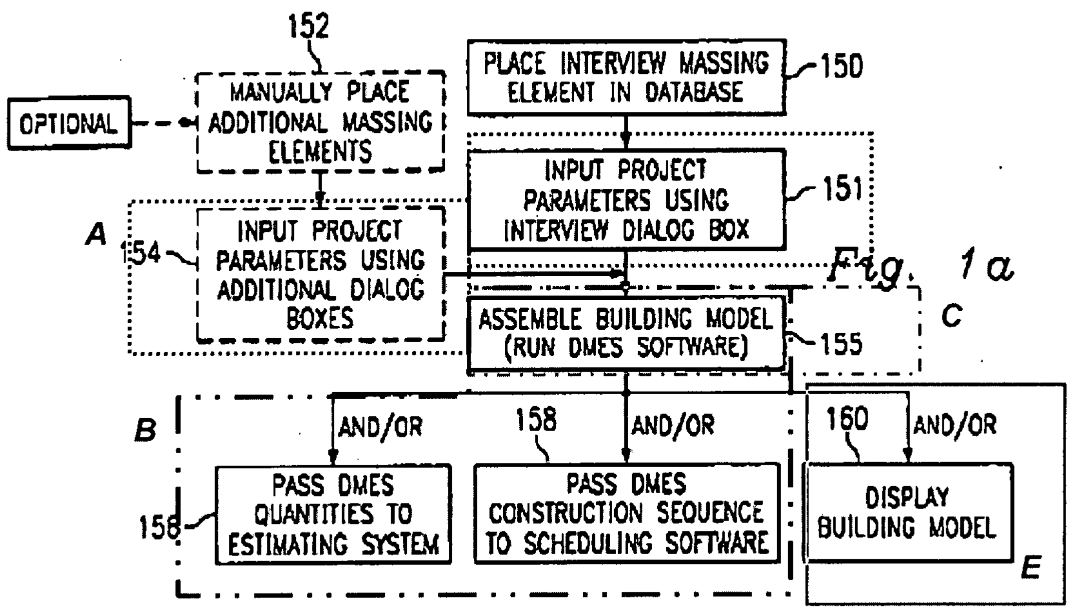
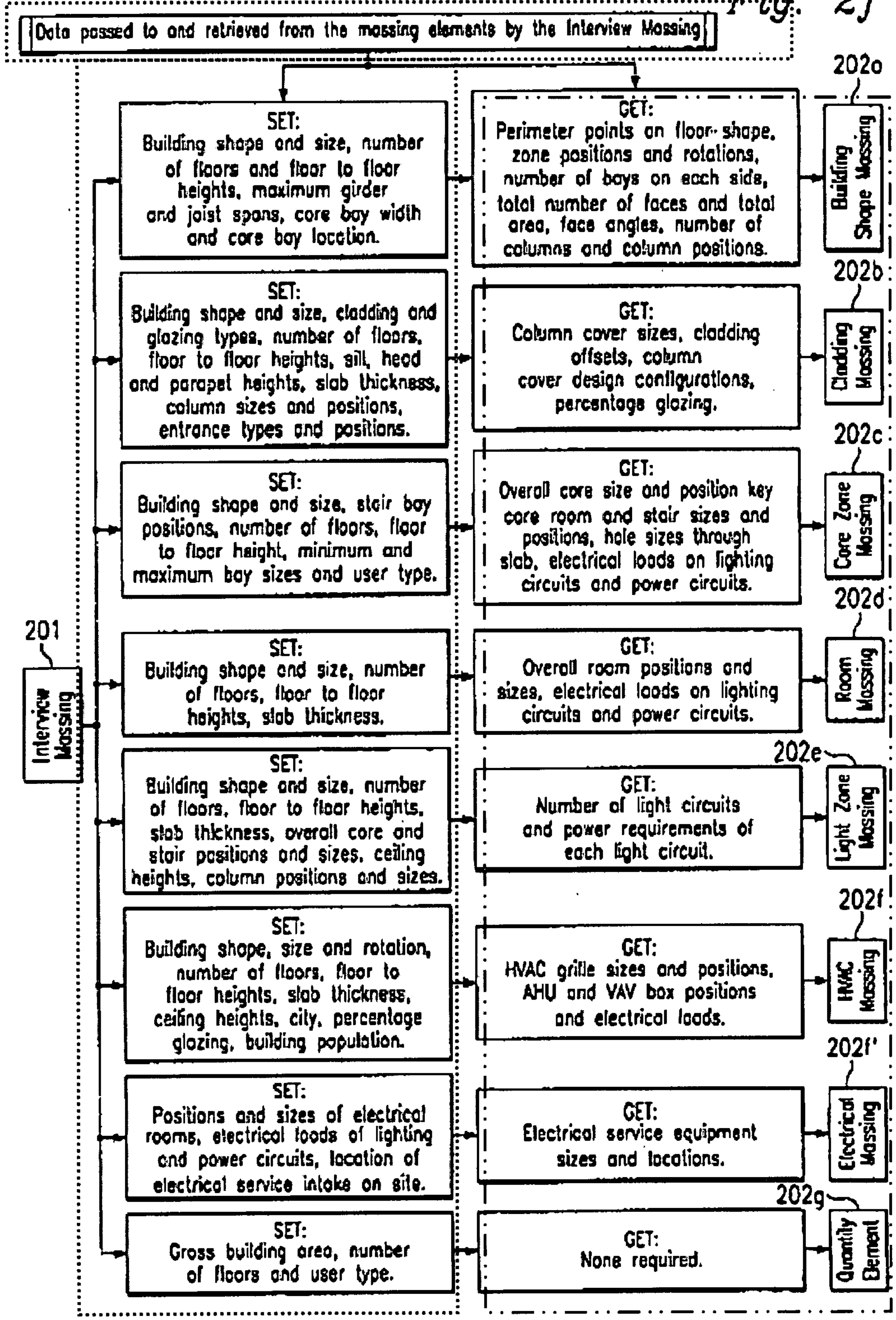


Fig. 1a

A

Fig. 2f

B, C, D


Data passed to and retrieved from the massing elements by the Interview Massing
201
Interview Massing
SET: Building shape and size, number of floors and floor to floor heights, maximum girder and joist spans, core bay width and core bay location.
GET: Perimeter points on floor shape, zone positions and rotations, number of bays on each side, total number of faces and total area, face angles, number of columns and column positions.
202a
Building Shape Massing
SET: Building shape and size, cladding and glazing types, number of floors, floor to floor heights, sill, head and parapet heights, slab thickness, column sizes and positions, entrance types and positions.
GET: Column cover sizes, cladding offsets, column cover design configurations, percentage glazing.
202b
Cladding Massing
SET: Building shape and size, stair bay positions, number of floors, floor to floor height, minimum and maximum bay sizes and user type.
GET: Overall core size and position key core room and stair sizes and positions, hole sizes through slab, electrical loads on lighting circuits and power circuits.
202c
Core Zone Massing
SET: Building shape and size, number of floors, floor to floor heights, slab thickness.
GET: Overall room positions and sizes, electrical loads on lighting circuits and power circuits.
202d
Room Massing
SET: Building shape and size, number of floors, floor to floor heights, slab thickness, overall core and stair positions and sizes, ceiling heights, column positions and sizes.
GET: Number of light circuits and power requirements of each light circuit.
202e
Light Zone Massing
SET: Building shape, size and rotation, number of floors, floor to floor heights, slab thickness, ceiling heights, city, percentage glazing, building population.
GET: HVAC grille sizes and positions, AHU and VAV box positions and electrical loads.
202f
HVAC Massing
SET: Positions and sizes of electrical rooms, electrical loads of lighting and power circuits, location of electrical service intake on site.
GET: Electrical service equipment sizes and locations.
202f'
Electrical Massing
SET: Gross building area, number of floors and user type.
GET: None required.
202g
Quantity Element

A	Interview Massing	Allows input of design requirements from customer and initiates automatic assembly of building model by placing instances of the next tier of massing elements in the hierarchy and passing them appropriate design parameters. This massing element also places an instance of the interview estimate element, which is automatically passed quantity data directly from each of the elements in the hierarchy.
C, E	Interview Estimate	Placed by the interview-massing element, this element is automatically passed quantity data by the other elements in the hierarchy when they are executed. It then generates a graphical spreadsheet in the database, which displays the cost estimate data.
	Cladding Massing	Placed by the interview-massing element, this element is automatically passed the building parameters and the requirements for the cladding. It then assembles the appropriate cladding types on each part of each elevation of the building model by placing the curtainwall massing and precast massing elements as required.
	Curtainwall Massing	Calculates the curtainwall cladding and glazing requirements for the building from the building parameters passed to it by the interview-massing element and design data read in from external data files. This element then assembles the curtainwall cladding and windows around the building by placing consecutive instances of the curtainwall element and the parapet, entrance and canopy elements.
B, C, D	Curtainwall Element	Designs the individual curtainwall or glazing panel from design parameters passed to it by the curtainwall-massing element. This element also calculates an accurate set of quantities for materials and components used to assemble the panel. The element can also place instances of the entrance and canopy elements when required, and pass them appropriate design parameters.
	Parapet Element	Designs the individual roof parapet sections from design parameters passed to it by the curtainwall-massing element. This element also calculates an accurate set of quantities for materials and components used to assemble the parapet section.
	Entrance Element	Designs the individual entrance doors and panels from design parameters passed to it by the curtainwall element. This element also calculates an accurate set of quantities for materials and components used to assemble the entrance.
	Canopy Element	Designs the individual canopies over the main entrances from design parameters passed to it by the curtainwall element. This element also calculates an accurate set of quantities for materials and components used to assemble the canopy.
C, E	Curtainwall Estimate	Placed by the curtainwall-massing element, this element is automatically passed quantity data by the curtainwall elements when they are executed. It then generates a graphical spreadsheet in the database, which displays the cost estimate data for the curtainwall cladding and glazing.

Fig. 2g

B, C, D	Precast Massing	Calculates the precast cladding requirements for the building from the building parameters passed to it by the interview-massing element and design data read in from external data files. This element then assembles the precast panels around the building by placing consecutive instances of the precast element.
	Precast Element	Designs the individual precast panel from design parameters passed to it by the precast-massing element. This element also calculates an accurate set of quantities for materials, components and labor used to assemble the panel.
	Precast Estimate	Placed by the precast-massing element, this element is automatically passed quantity data by the precast elements when they are executed. It then generates a graphical spreadsheet in the database, which displays the cost estimate data for the precast cladding.
	Core Zones Massing	Placed by the interview-massing element, this element is automatically passed the building parameters and the requirements for the various core layouts. It then assembles the appropriate core layouts into each zone on each floor of the building model by placing the core massing element as required.
B, C, D	Core Massing	Calculates the core requirements for the building from the building parameters passed to it by the interview-massing element and design data read in from external data files. This element then assembles the rooms in the core of the building by placing the elevator massing element and consecutive instances of the room element.
	Room Massing	Calculates the room requirements for the building from the building parameters passed to it by the interview-massing element and design data read in from external data files. This element then assembles the rooms on each floor of the building by placing consecutive instances of the room element.
	Room Element	Calculates the requirements for each room from the room parameters passed to it by the core-massing or room-massing elements and design data read in from external room data files. This element then assembles the contents of the room in by placing instances of the lighting, electrical devices and furniture elements.
	Stair Element	This element calculates the floor to floor stair requirements from data sent to it by the room element and sizes itself to fit the building.
	Grouping Massing	This element assembles a group of instances in the appropriate locations from data read in from external data files. This element is typically placed by the room element to control the grouping of the contents of the room.
B, C, D	Door Element	This element calculates the opening requirements from data sent to it by the room element and sizes itself to fit the door opening.

Fig. 2h

C, E	Room Estimate	Placed by the core-massing or room-massing elements, this element is automatically passed quantity data by the room elements when they are executed. It then generates a graphical spreadsheet in the database, which displays the cost estimate data for the rooms.
B, D	Elevator Massing	Calculates the elevatoring requirements for the building from the building parameters passed to it by the interview-massing element and design data read in from external data files. This element then assembles the elevators on each floor of the building by placing consecutive instances of the elevator typical element and the elevator roof element.
	Elevator Typical Element	This element calculates the typical floor to floor elevator requirements from data sent to it by the elevator massing element and sizes itself accordingly.
	Elevator Roof Element	This element calculates the roof level elevator requirements from data sent to it by the elevator massing element and sizes itself accordingly.
C, E	Elevator Estimate	Placed by the elevator-massing element, this element is automatically passed quantity data by the elevator elements when they are executed. It then generates a graphical spreadsheet in the database, which displays the cost estimate data for the elevators.
B, D	Light Massing	Calculates the lighting requirements for each floor of the building from the building parameters passed to it by the interview-massing element and design data read in from external data files. This element then assembles the lights on each floor of the building by placing consecutive instances of the light element. Potential clashes between lights and other building components are automatically handled by functionality in this element checking the positioning of these elements and repositioning each light.
	Light Element	Configures its self as the appropriate light fixture dependent on data passed to it by the light massing element. This element also routes its own circuit wiring to connect it to its neighbor in the circuit or to the light switch or appropriate junction box. It then calculates the types and quantities of wire and insulation used.
C, E	Lighting Estimate	Placed by the light-massing element, this element is automatically passed quantity data by the light elements when they are executed. It then generates a graphical spreadsheet in the database, which displays the cost estimate data for the lights and wiring.
	Building Shape Element	Determines the building configuration and floor plate area. Allows adjustment of various variables that make up the building perimeter. Calculates the perimeter points and sends this information to the grid/dimension element to calculate the grid layout then the structure element is called to calculate the structural components and estimate.

Fig. 2i

	Grid/ Dimension Element	Calculates the grid layout dimensions for the building configuration.
B, C, D	Structure Element	Receives the building layout and grid locations from above elements then calculates all pier, column, beam and joist locations. Accumulates all quantities and develops an estimate for the structure.
	Pier Cap/ Grade Beam Element	Calculates the location and sizes for the pier caps and grade beams.
B, C, D	Electrical Massing	Calculates the electrical service requirements for each floor of the building from the parameters passed to it by the interview-massing element and design data read in from external data files. This element then assembles electrical service equipment and wiring on each floor of the building by placing consecutive instances of the electrical device element. It can also generate a graphical spreadsheet in the database, which displays the high and low voltage electrical service panel circuit breaker diagrams.
E	Electrical Device Element	Configures its self as the appropriate electrical equipment or device dependent on data passed to it by the electrical massing element. This element also routes its own circuit wiring to connect it to its neighbor in the circuit or to the appropriate junction box. It then calculates the types and quantities of wire and insulation used.
	Electrical Estimate	Placed by the electrical-massing element, this element is automatically passed quantity data by the electrical device elements when they are executed. It then generates a graphical spreadsheet in the database, which displays the cost estimate data for the electrical devices, equipment and wiring.
B, C, D	HVAC Massing	Receives the building configuration from the building shape element then calls the HVAC Area element to calculate all zone areas. Then passes these areas to the peaks element which calls the tables element and the floor and building peak loads are calculated. This element then places instances of the exterior, interior and corner VAV elements, which calculate the VAV box and Duct sizes.
	HVAC Exterior VAV Element	Calculates the exterior VAV box, duct and diffuser sizes for the perimeter zones.

Fig. 2j

	HVAC Interior VAV Element	Calculates the interior VAV box, duct and diffuser sizes.
	HVAC Corner VAV Element	Calculates the corner VAV box, duct and diffuser sizes for the perimeter zones.
B, C, D, E	HVAC Area Element	Receives the building perimeters from the HVAC massing element, breaks the building up into interior, exterior and corner zones then calculates the floor square footage for each zone.
	HVAC Peaks Element	Receives the ASHRAE cooling and heating load tables from the tables element and the zone areas from the area element and calculates the building and floor peak load design criteria.
	HVAC Tables Element	Receives the longitude, latitude and other pertinent information about the building location and creates cooling load, solar gain and factor tables to be used to calculate the design building loads.
	HVAC Estimate	Placed by the HVAC-massing element, this element is automatically passed quantity data by the HVAC elements when they are executed. It then generates a graphical spreadsheet in the database, which displays the cost estimate data for the HVAC system.
B, C, D	Site Massing	Calculates the site requirements for the building from the building parameters passed to it by the interview-massing element and design data read in from external data files. This element then assembles the site layout around the building by placing applicable instances of the site element.
	Site Element	Designs the individual site elements from design parameters passed to it by the site-massing element. This element also calculates an accurate set of quantities for materials and components used to assemble the site layout.
B, C, D, E	Site Estimate	Placed by the site-massing element, this element is automatically passed quantity data by site elements when they are executed. It then generates a graphical spreadsheet in the database, which displays the cost estimate data for the site layout.
	Quantities Element	Placed by the interview-massing element, this element calculates additional required building components not covered by the individual estimate elements listed above. Applicable building information is passed by the interview-massing element when it is executed. It then generates a graphical spreadsheet in the database, which displays the cost estimate data for the additional building components. It also passes its quantity data directly to the interview estimate element.

Fig. 2k

Building Design Advisor teaches a computer-implemented system (i.e. code) and method of selecting items for a project within a criteria comprising:

- selecting a set of items based on calculated set of values (Decision Desktop, multi-criterion decision making; reference A: Last Paragraph, Page 2; "The Decision Desktop", Pages 7-8; Last Paragraph, Page 10; Paragraph 1, Page 11; "DVS selects a default exterior wall segment type by first computing the ASHRAE recommended minimal thermal resistance based on degree-days and then selecting a wall type from the library or walls that best matches the recommended value.", Paragraph 2, Page 12; Figure 3; reference B: Column 2, Page 5; "The building model", Pages 9-10; Column 2, Paragraph 2, Page 11; reference C: Default Value Selection, Column 2, Paragraphs 1-2, Page 8; Column 2, Paragraph 2, Page 14);

- displaying to a user the selected items that meet project criteria (items that meet performance criteria, etc.; reference A: "review results from computations and data queries in a variety of graphical displays", Bullet 7, Page 3; The Graphical User Interface, Page 6; Last Paragraph, Page 10; Paragraph 1, Page 11; Figures 3, 8; reference B: Column 2, Page 4; Figures 4-6; reference C: User Interface, Pages 8-9; Figures 7, 10-12); and

- code (software, routine, subsystem, component, object, graphical user interface, software environment, etc.) for selecting and displaying a set of items based on the calculated set of values (using a computer to select, calculate and display; Decision Desktop, Default Value Selector, Graphical User Interface, Schematic Graphic

Editor, etc.; reference A: The Graphical User Interface, Page 6; The Decision Desktop, Pages 7-8; "the user can request the computation and display of the values for all checked parameters by clicking on the Calculate button found in the main BDA window.", Last Paragraph, Page 10; Paragraph 1, Page 11; Figures 3, 5-6; reference C: Information Technologies, Pages 4-5; Figure 2).

Further it is noted that several prior art references teach the automated selection of a set of items that satisfy a set of values (e.g. automatically selection a set of items that satisfy a set of values by selecting windows, insulation, HVAC or other structural components of a building) including *at least* the following references:

- Building Design Advisor (BDA): "For every object created in the SGE, the BDA activates a default Value Selector (DVS) mechanism that selects smart default values from a prototypes database for all non-geometric parameters...", reference A: Abstract; "DVS selects a default exterior wall segment type by first computing the ASHRAE recommended minimal thermal resistance based on degree-days and then selecting a wall type from the library or walls that best matches the recommended value.", Paragraph 2, Page 12; reference B: "Advances in computer applications over the last few decades have resulted in the gradual replacement of manual modeling with computer-simulation models.", Column 2, Paragraph 3, Page 1; Column 2, Paragraph 3,

Page 2; reference C: Column 2, Paragraph 2, Page 4; Column 2, Paragraph 2, Page 5;

- Bosch, Maria, An expert system for cost-effective energy efficiency calculations (1996): Column 1, Paragraph 2, Page 23; Column 1, Paragraphs 2-3, Page 24;
- New software tool identifies green design strategies (1999): entire article;
- Rosenthal et al., U.S. Patent No. 4,181,954: Column 2, Lines 29-48;
- Pray et al., U.S. Patent No. 4,885,694: Column 1, Lines 7-25; Column 13, Lines 65-68;
- Williams, David, U.S. Patent No. 5,517,428: Column 1, Lines 10-18;
- Kurtzberg et al., U.S. Patent No. 5,822,719: Abstract; Column 1, Lines 10-14; Column 2, Steps 1-7;
- Ray, Charles, U.S. Patent No. 6,167,388: Column 1, Lines 5-20; Column 2, Lines 10-15; and
- Rappaport et al., U.S. Patent No. 7,055,107: Column 1, Lines 38-49; Column 6, Lines 3-30.

In response to Applicant's argument that the prior art of record, specifically Makelam et al. fails to teach or suggest items stored at least one database with each item having an associated first and second item values (Paragraphs 1-2, Page 7) or a

table of a plurality of second project values and associated combinations of the first item values (Paragraph 3, Page 10) the examiner respectfully disagrees.

Mäkelam et al. teach storing in at least one database with each item having an associated first and second item values and a table of a plurality of second project values and associated combinations of the first item values ("generates a graphical spreadsheet in the database, which displays the cost estimate data…", Figures 2g-2k; Figure 2a , Element 220, 204h-204l – data tables/data files; Figure 1, Elements 118, 123, 124; "To bring a suitable level of control and efficiency to the AEC Industry processes, it is imperative to centralize all of the project information and expertise in a single, coordinated database that would allow all of the entities involved in a construction project to instantly access and draw from it to expedite management and coordination of the constantly changing information. Such a database system would also be essential in helping to accurately, quickly, and clearly display and communicate the current design state to the various entities, as well as to the client, in order to facilitate informed responses and decisions.", Column 1, Lines 40-50; Column 2, Lines 1-10, 26-36).

In response to Applicant's argument that the prior art of record fails to teach or suggest calculating a first project value for the project based on the project information and criteria and determining sets of items that are in compliance with the calculated first value (Last Paragraph, Page 7; Paragraph 1, Page 8) the examiner respectfully disagrees.

Makelam et al. teach calculating a first project value for the project based on the project information and criteria, as discussed above in detail.

Makelam et al. teach determining sets of items that are in compliance (meet, achieve, do not violate, etc.; e.g. detect and prevent physical clashes between components/items wherein the first project value(s) may include the number and placement of the items and compliance is ensuring the items meet/achieve the project criteria – enough floor beams & joist to support a floor – as well as ensure that the placement of a floor beam/joist does not clash with the placement of windows, plumbing, or other project criteria and/or calculated values or alternatively owner/user reviews building design/plan and does not approve of them – design does not comply with budget, schedule or other owner/user requirements – the system then re-designs the building with the updated parameters/criteria) with the calculated first value (Column 3, Lines 34-46; Column 4, Lines 1-9, 60-68; Column 5, Lines 1-15, 68-68; Column 9, Lines 40-45; Column 14, Lines 16-55; Figure 3, Element 308, 310).

In response to Applicant's argument that the prior art of record fails to teach or suggest iterating through combinations of first item values and determining sets of items that are in compliance with the calculated first project value based on the iterated combinations (Paragraph 2, Page 8) and that the iterating steps begins at a first combination of first item values based on the second project value (Paragraph 3, Page 9) the examiner respectfully disagrees.

Makelam et al. teach suggest iterating through combinations of first item values and determining sets of items that are in compliance with the calculated first project value based on the iterated combinations (Column 4, Lines 37-59; Column 5, Lines 1-15, 42-68; Column 13, Lines 5-33; Column 14, Lines 13-55; Column 18, Lines 34-68; Column 19, Lines 1-46; Appendix A; Figures 3, 6a, 6b).

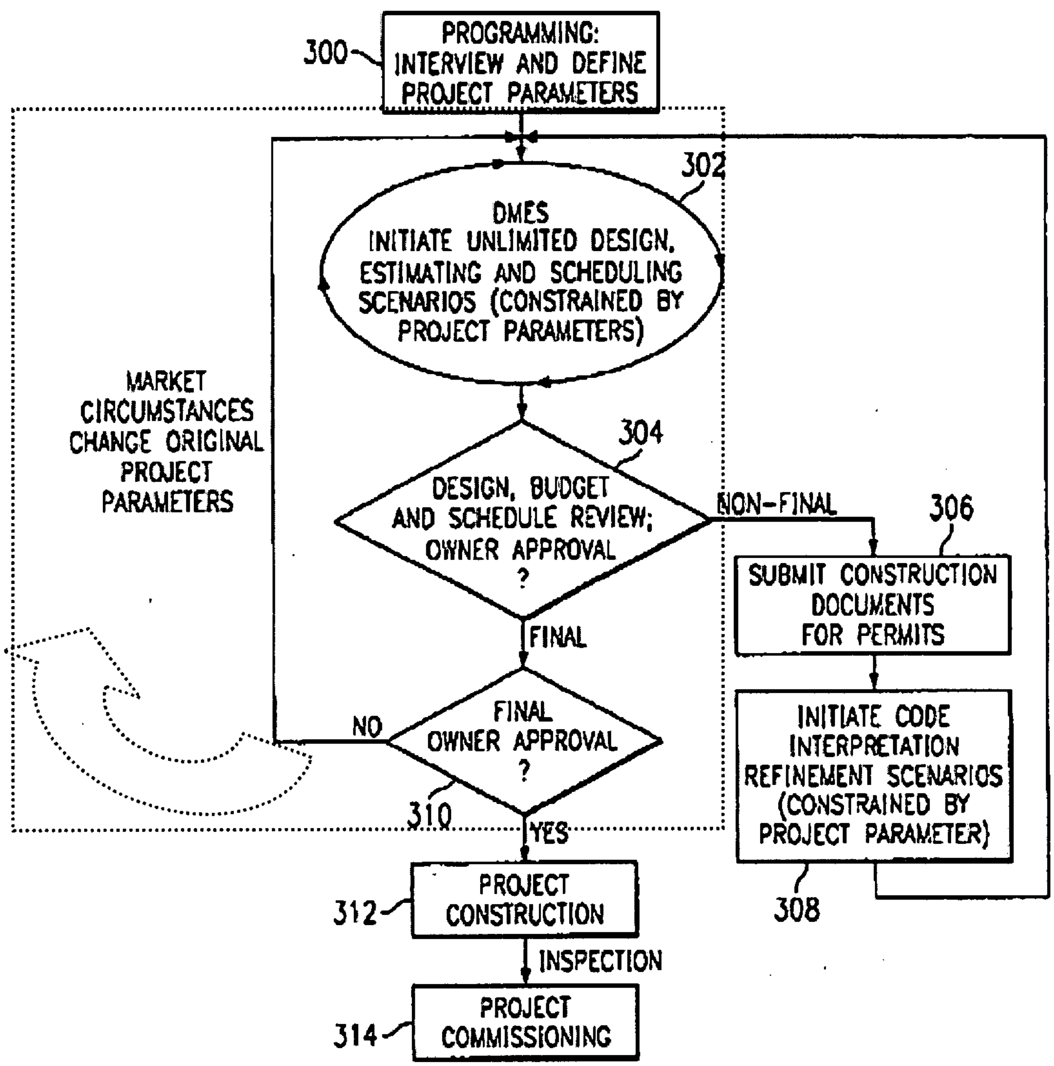


Fig. 3

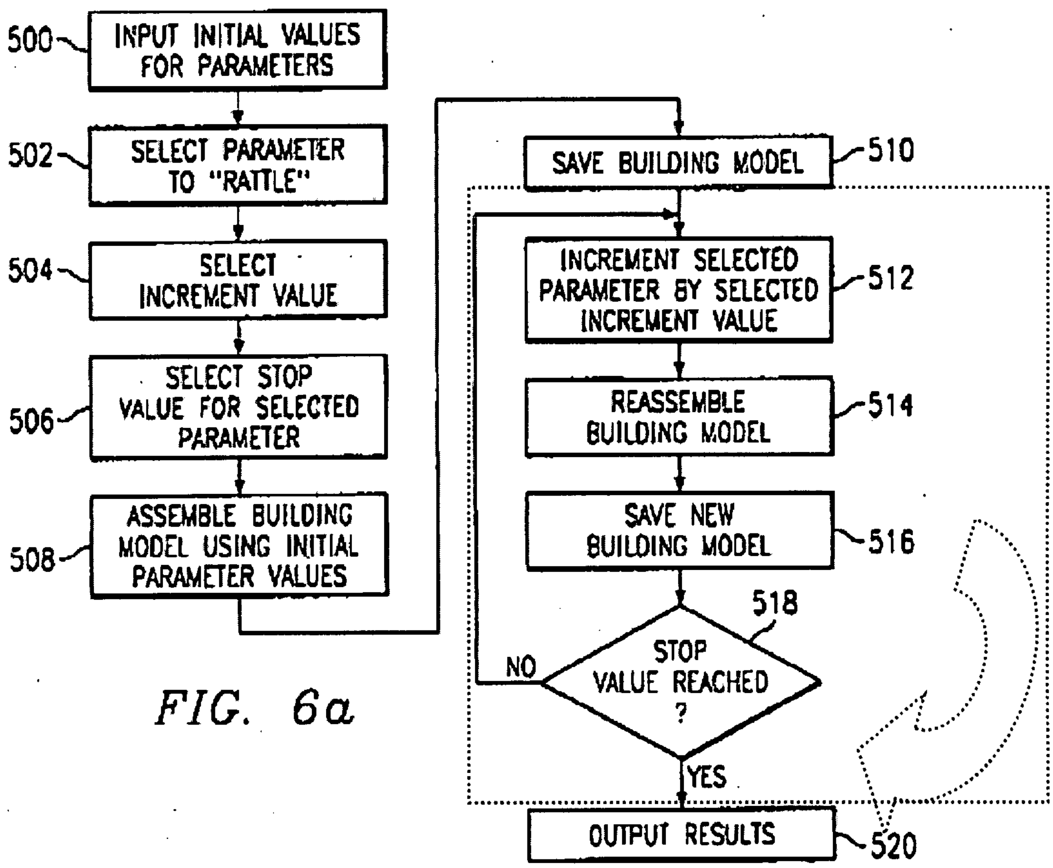


FIG. 6a

In response to Applicant's argument that the prior art of record fails to teach or suggest that each set value is a combination of second item values associated with each set of items (Paragraph 5, Page 10) the examiner respectfully disagrees.

Makelam et al. teach that each set value is a combination of second item values associated with each set of items (e.g. project scenarios/design iterations each comprise a combinations of first/second items and there associated values – including calculated values such as cost, materials, quantities, labor, installation, schedule, etc.; Column 8, 16-37; Column 9, Lines 1-65; Column 12, Lines 11-36; Column 14, Lines 15-45; Figures 2a-2k, 3).

In response to Applicant's argument that the prior art of record fails to teach or suggest that the second item value is an item cost (Paragraphs 2-3, Page 11) the examiner respectfully disagrees.

Makelam et al. teach that the second item value is an item cost (cost estimate database; Column 9, Lines 8-31; Column 12, Lines 11-24; Column 14, Lines 16-43; Column 19, Lines 18-37; Figure 1, Element 123; Figures 1b, 2b-2c, 3, 6a).

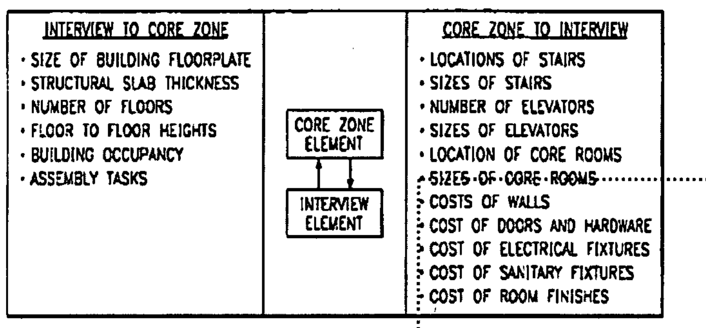


Fig. 2b

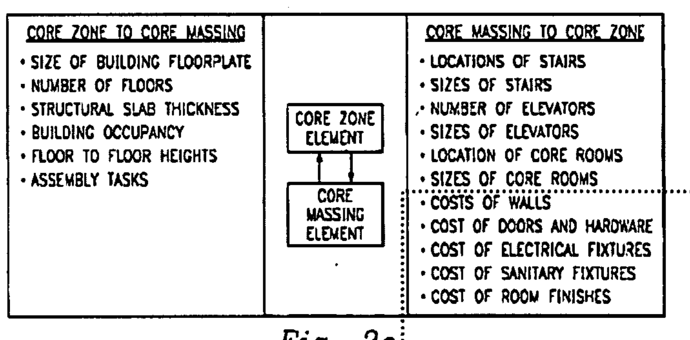


Fig. 2c

In response to Applicant's argument that the prior art of record fails to teach or suggest that the structural information comprises information on main walls, ceilings,

floors, basement walls, doors, glazing, slab perimeter or crawl space walls (Paragraph 4, Page 11) the examiner respectfully disagrees.

Makelam et al. teach suggest that the structural information comprises information on main walls, ceilings, floors, basement walls, doors, glazing, slab perimeter ***or*** crawl space walls ((Column 2, Lines 11-36; Column 3, Lines 34-46; Column 14, Lines 15-43; Column 17, Lines 36-68; Figures 3; 2a-2d; 4a-5f).).

In response to Applicant's argument that the prior art of record fails to teach or suggest updating the second item values (Paragraphs 2-3, Page 12) the examiner respectfully disagrees.

Makelam et al. teach updating the second item values (updating the building design/project scenario based on updated criteria/parameters in turn leading to updates to the selected items (number, quantity, location, size, cost, schedule, etc.); see iterative steps highlighted on Figures 3, 6a above; "Market Circumstances Change Original Project Parameters", Figure 3; Column 4, Lines 38-59; Column 5, Lines 1-15; Column 19, Lines 1-37; Figure 4b).

In response to Applicant's argument that the prior art of record fails to teach or suggest sending a document containing updated second item value to an administrative serve computer that is configured to update the at least one database (Last Two Paragraphs, Page 12) the examiner respectfully disagrees.

Wakelam et al. teach sending a document (information, message, electronic signal, HTML post/get, HTML form, GUI, etc.) to update second item value information to a system (administrative server, subsystem, component, code, subroutine, etc.) wherein the system is configured to update the at least one database (Column 3, Lines 47-56; Column 4, Lines 38-59; Column 5, Lines 1-15; Column 19, Lines 1-37; Figure 4b).

> "the estimate database 123 is designed such that the **cost data contained therein may be periodically updated either automatically or manually** via local or remote access thereto. For example, in a web-based implementation of the present invention, it would be possible for one or more authorized individuals to upload updated cost data to the database 123 on the web server. Alternatively, it would be possible for one or more authorized individuals to download such **updated cost data** to the database 123 stored on a computer connected to a network server or to manually update the data by directly accessing the database and changing selected data.", emphasis added, Column 9, Lines 20-31

In response to Applicant's argument that the prior art of record fails to teach or suggest that the each items is one of a building material and building system, the project is a structure, each first value is an item cost and each total first value is the sum material cost of a set of items (Paragraph 3, Page 13) the examiner respectfully disagrees.

Makelam et al. teach that the each items is one of a building material and building system, the project is a structure, each first value is an item cost and each total first value is the sum material cost of a set of items (Column 3, Lines 47-56; Column 4, Lines 38-59; Column 5, Lines 1-15; Column 9, Lines 20-31; Column 10, Lines 57-68; Column 11, Lines 1-25; Column 19, Lines 1-37; Figures 2a-2k, Appendices A, B; see highlighted sections of Figures 2b, 2c above wherein system determines total cost of

the walls, doors and hardware, etc.; Figure 6b shows the total cost of the structure over a variation of the building's design criteria; Figure 3, Element 304 presents budget for owner/user approval wherein the budget summarizes the total cost for constructing the building as designed; Figure 1a, Element 156; Figure 1, Element 174 –Detailed Cost Estimate Sheet, Element 123 Cost Estimating System).

In response to Applicant's argument that the prior art of record fails to teach or suggest analyzing interactions between at least two items based on the associated first and second item values and a structural component based on an associated first/second item value (Paragraphs 1, 3, Page 14) the examiner respectfully disagrees.

Makelam et al. teach analyzing interactions between at least two items based on the associated first and second item values and a structural component based on an associated first/second item value (e.g. iterating through various building designs until a final design, which meets the owners approval criteria, is selected – Figure 3; Figure 6b which shows the total cost of the structure over a variation of the building's design criteria – i.e. the cost resulting from the interacting between particular design and a building criteria/parameter – rotation on site; Column 4, Lines 38-59; Column 13, Lines 22-33; Column 18, Lines 34-68; Column 19, Lines 1-37; Figure 3).

In response to Applicant's argument that the prior art of record fails to teach or suggest that the second project value is glazing (Paragraph 2, Page 17; Paragraph 3, Page 19) the examiner respectfully disagrees.

While does not expressly teach expressly glazing area as a percentage Makelam et al. teach that the second project value includes glazing (insulation, glass solar gain, etc; Column 8, Lines 25-37; Column 10, Lines 57-68; Column 11, Lines 1-24; Last Row, Figure 2g).

MECcheck teaches that at least one database further comprises glazing area and associated items that may be used in constructing a structure while complying with the energy code and further comprising code to calculate at least one glazing area for the structure based on the input structure information and code to determine sets of items by first determining the items that are associated with the calculated glazing area in analogous art of project performance evaluation for the purposes of selecting items that meet/comply with project criteria such as building energy codes ("Your UA", "Max UA"; Software User's Guide: Last Paragraph, Page 3; Windows, gross area, U-Factor, UA value; Page 15; Appendix B: Pages 1-2; Definitions Page 3). MECcheck teaches that a project value is a glazing area wherein the glazing area values are represented as decimals and fractions (the mathematical equivalent percentages; Appendix B, Pages 1-2).

Further it is noted that utilizing glazing area percentage as a building (project) criteria, more specifically as a required regulatory requirement, is old and very well known as evidenced by at least the following:

- State Building Code Interpretation No. 94.01 (1994);

- Washington State House Bill 1886 (1999), Page 2, Section vi, Page 3, section vii and 5;

- REScheck Prescriptive Package Requirements Zone 1 Pamphlet (2003) teaches the 1998/2000 IECC prescriptive (i.e. rules) packages for determining the level of insulation needed for various areas of the home (basement, crawl space) and heating/cooling equipment needed for different levels of glazing areas in order to be in compliance with energy codes.

ZONE 1

Single-Family Prescriptive Packages

1998/2000 IECC

Step by Step Instructions

Step 1: Determine the glazing area %.

Step 2: The glazing area percentage is a maximum, so as long as any buildings built with the selected package have less than or equal to the listed glazing area percentage, the buildings will comply with the selected code. Each component requirement must be met within the selected package, otherwise select another package or use the REScheck™ software, which can calculate trade-offs for compliance.

Step 3: Complete the Prescriptive Package Worksheet available online at www.energycodes.gov/rescheck/prescriptive.stm.

Package	MAXIMUM		MINIMUM					Heating/Cooling Equipment Efficiency[9]
	Glazing Area %[1]	Glazing U-Factor[2]	Ceiling R-Value[3]	Wall R-Value[4]	Floor R-Value[5]	Slab Perimeter R-Value[7]	Crawl Space Wall R-Value[8]	
1	15%	any	R-13	R-11	R-11	—	—	Normal
2	18%	0.90	R-19	R-13	R-11	—	—	Normal
3	18%	0.75	R-13	R-11	R-11	—	—	Normal
4	20%	0.80	R-19	R-11	R-11	—	—	Normal
5	25%	0.70	R-30	R-11	R-11	—	—	Normal
6	25%	0.65	R-19	R-11	R-11	—	—	Normal
7	25%	any	R-11	R-11	R-11	—	—	High Cooling

In response to Applicant's Argument that the prior art of record fails to teach or suggest that the inputted information includes upgrade information and wherein the first step of calculating a first project value further comprises increasing the first project value based on the upgrade information and the step of re-determining sets of items

that are in compliance with the increased first project value (Last Paragraph, Page 17; Paragraph 1, Page 18) the examiner respectfully disagrees.

Wakelam et al. teach a updating (upgrading, improving, enhancing, changing, etc.) project value data and re-determining sets of items that are in compliance with the changed (updated, increased, modified, etc.) first project value (e.g. updating cost or other project criteria based on updated market parameters – Figure 3; updating items based item clashes; Column 4, Lines 38-59; Column 5, Lines 1-15; Column 19, Lines 1-37; Figure 4b; updating items when user/owner does not approve of design – see design iteration discussion above; Figure 3, 6a; selecting/updating parameters based on cost of design over a range of building site rotation values; Figure 6b; renovation projects, Column 1, Lines 12-27).

Wakelam et al. does not expressly teach that the project information comprises upgrade information as claimed.

MECcheck teaches analyzing additions/renovations/alterations to existing projects/structures (i.e. upgrades, improvements, etc.) wherein the project information comprises upgrade information and calculating a project value further comprises increasing the project value based on the upgrade information and re-determining sets of items that are in compliance with the increased project value in an analogous art of project performance evaluation for the purposes of ensuring added/updated project items comply with building codes (Introduction: "What buildings must comply?", Page 1; Appendix A: Additions Pages 1-2; Definitions: Additions, Alterations, Page 1).

In response to Applicant's argument that the prior art of record fails to teach or suggest that the items comprise different types of insulation wherein the criteria is an energy code that uses a UA value for a given structure and comprises code to calculate the UA value based at least in part on input structure information and code to determine sets of insulation that may be used in constructing the structure in compliance with the UA value (Last Paragraph, Page 18) the examiner respectfully disagrees.

MECcheck teaches that the items comprise different types of insulation wherein the criteria is an energy code that uses a UA value for a given structure and comprises code to calculate the UA value based at least in part on input structure information and code to determine sets of insulation that may be used in constructing the structure in compliance with the UA value (Software Overview: Pages 9; Basic Requirements: Pages 5-6; Pages 1, 4-5; Software Overview: Pages 1, 3-4, 22; Paragraph 2, Page 8; Compliance Examples, Pages 27-30).

In response to the Applicant's argument that the date cited for Papamichael et al., Product Modeling for Computer Aided Decision Making is not proper and/or incorrect due to incorrect page numbers (Paragraph 2, Page 25) the examiner respectfully disagrees.

The article by Papamichael et al. is clearly directed to the Building Design Advisor system and as such discloses features and/or characteristics, many of which are disclosed in other references cited in relation to the BDA system, inherent in the system regardless of the date of the publication.

Further the incorrect page numbers are the result of an error in printing the document wherein upon reading the document it is clear that the sentences, tone, and subject clearly flow through the entire article making it clear that the pages represent the article completely.

In response to Applicant's argument that no rationale or evidence was provided to show support for the inherency of the features and/or characteristics cited with respect to the Building Design Advisor (BDA) system and method (Paragraph 2-3, Page 25; Paragraph 1, Page 26; Paragraphs 2-3, Page 27) the examiner respectfully disagrees.

The Building Design Advisor (BDA) system and method is a single software system and method for selecting a set of project items (building components, materials, equipment, etc.) that meet project criteria, wherein each of the cited *supporting* references which *expressly* teach features, capabilities and/or characteristics inherent in the <u>Building Design Advisor</u> software product (system/method).

Further it is noted that the cited supporting references:

- each contain at least one common author Papamichael K. (Reference A: Papamichael, Chauvet; Reference B: Papamichael, Chauvet, LaPorta, Dandridge; Reference C: Papamichael);
- Reference A is cited in the bibliography of Reference B ([7] Page 10);
- each of the cited references and the research and development disclosed was funded by the California Institute for Energy Efficiency (CIEE); and

- and all of the cited references (i.e. the BDA system/method) were written at the Building Technologies Program, Environmental Energy Technologies Division, Ernest Orlando Lawrence Berkley National Laboratory in Berkeley California.

In response to Applicant's argument that the prior art of record fails to teach or suggest code to decrease the UA value by a certain percentage (Last Paragraph, Page 30) the examiner respectfully disagrees.

MECcheck teaches adjusting (decreasing and increasing) the UA value as part of the design (selected items) trade-off analysis for determining a set of selected items that comply with the building codes (Max UA, Your UA, percent over/under compliance, etc.; Introduction: Pages 1, 4-5; Software Overview: Pages 1, 3-4, 15, 22; Paragraph 2, Page 8; Compliance Examples, Pages 27-30).

In response to Applicant's argument that the prior art of record fails to teach or suggest code for calculating energy consumption information based on the new insulation and climate control information (Paragraph 3, Page 31) the examiner respectfully disagrees.

Wakelam et al. teach code for performing cost comparisons and/or building model optimizations by iteratively generating multiple structure/building models (rattling the box; Column 13, Lines 22-33; Column 19, Lines 1-37; Figures 6a-6b) to select/determine a building design which meets the owner/user's project criteria (budget, schedule, cost, etc).

MECcheck teaches code to recalculate the UA value for the structure for the purposes of evaluating and ensuring that the thermal performance of a building (Your UA, Max UA, percent over/under compliance, etc.) complies with building energy codes (Introduction: Page 5, Bullet 1; Software Overview: Pages 1, 3-4, 15; Appendix B: Pages 1-2, Definitions: Page 3) as well as performing trade-off analysis based on the UA and other project item/component values.

Bosch teaches code for identifying (selecting, presenting, recommending) a set of cost-effective (lowest cost) project items based on the iteratively analysis/trade-off analysis of a plurality of project values including but not limited to R values (R = 1/U) for the purposes of assisting designers in selecting the most cost effective and appropriate project designs (set of items; Page 23, Columns 1-2; Page 24, Column 1; Figure 1).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items utilizing a plurality of project item values including but not limited to UA values that meet a plurality of performance criteria including but not limited to cost as taught by the combination of Wakelam et al. and MECcheck would have benefited from selecting and presenting (recommending, identifying, etc.) project elements having the lowest cost (i.e. most cost-effective) in view of the teachings of Bosch; the resultant system enabling designers (architects, building decision-makers) to select the most appropriate (i.e. meet project criteria) and cost effective project items (Bosch: Page 23, Column 2, Paragraphs 1-2).

Further it is noted that the Applicant did not challenge the officially cited fact(s) in the previous office action(s) therefore those statements as presented are herein after prior art. Specifically it has been established that it was old and well known in the art at the time of the invention:

- to represent values using percentages, specifically it is old and well known to represent project (building, etc.) glazing values using glazing area percentages wherein such percentages represent the portion (fraction, percent) of a structure having windows, doors or other fenestration elements; and
- to determine the cost of delays thereby providing project managers information related to the status of the project and/or the impact of delays and other events on things such as the project budget/schedule.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-7, 13-15, 17-19, 25, 30-34, 42, 82, 84-85 and 89 are rejected under 35 U.S.C. 102(e) as being anticipated by Wakelam et al., U.S. Patent No. 6,859,768.

Regarding Claim 1 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria comprising (Column 2, Lines 1-10; Figures 1, 1a, 3, 6a-6b):

- inputting project information, including project criteria (parameters, requirements, codes, rules, engineering formulas, regulations, client requirements, material specifications, etc.; Column 2, Lines 1-10, 48-60; Column 8, Lines 16-37, 55-68; Column 10, Lines 6-56; Column 20, Lines 12-29; Figure 1a, Element 151, 152, 154; Figure 3, Element 300; Figures 1b, 4a-4d, 4f-4i);

- determining, with a computer, sets of items (elements, massing elements, lower-tier elements, components, materials, etc.) based on the project information that meet the criteria (Column 3, Lines 35-46; Column 4, Lines 1-8, 60-68; Column 6, Lines

17-22; Column 12, Lines 11-35; Column 14, Lines 15-55; Column 19, Lines 1-37; Figure 3, Element 302; Figure 6a);

- calculating for each set of items a set value (cost, price, schedule, item clashes, material quantities, code check, budget check, etc.; Column 3, Lines 12-46; Column 4, Lines 38-59; Column 5, Lines 1-15, 41-68; Column 14, Lines 15-55; Figure 6a);

- selecting a set of items based on the calculated set of values (design, building model, building configuration, clash detection, rattling the box, etc.; Column 17, Lines 35-68; Column 18, Lines 1-49; Column 19, Lines 1-37; Figure 3, Elements 302, 308); and

> "For example, **based on a design parameter of 50 lb/sf live load, the DMES system 110 would design a end span beam with the following attributes**: width 2'6"; depth 203/4"; reinforcing steel bottom 2--#11's; top east 6--#4's; top west 7--#11's; and #4 stirrups at 18" on center. **If it was determined that the live load needed to increase to 80 lb/sf, the DMES system would redesign the beam** to 3'0" wide and increase the reinforcing steel to: bottom 3--#11's; top east 4--#5's; top west 8--#11's; and #4 stirrups at 14" on center. ", Column 17, Lines 53-62, emphasis added

- displaying to a user the selected items that meet the project criteria (building model, building configuration, design; Column 4, Lines 1-14; Column 19, Lines 1-37; Figure 1, Elements 169, 170, 172, 174, 176, 178-179; Figure 1a, Element 160; Figures 5a-5l; Figure 6a, Element 520).

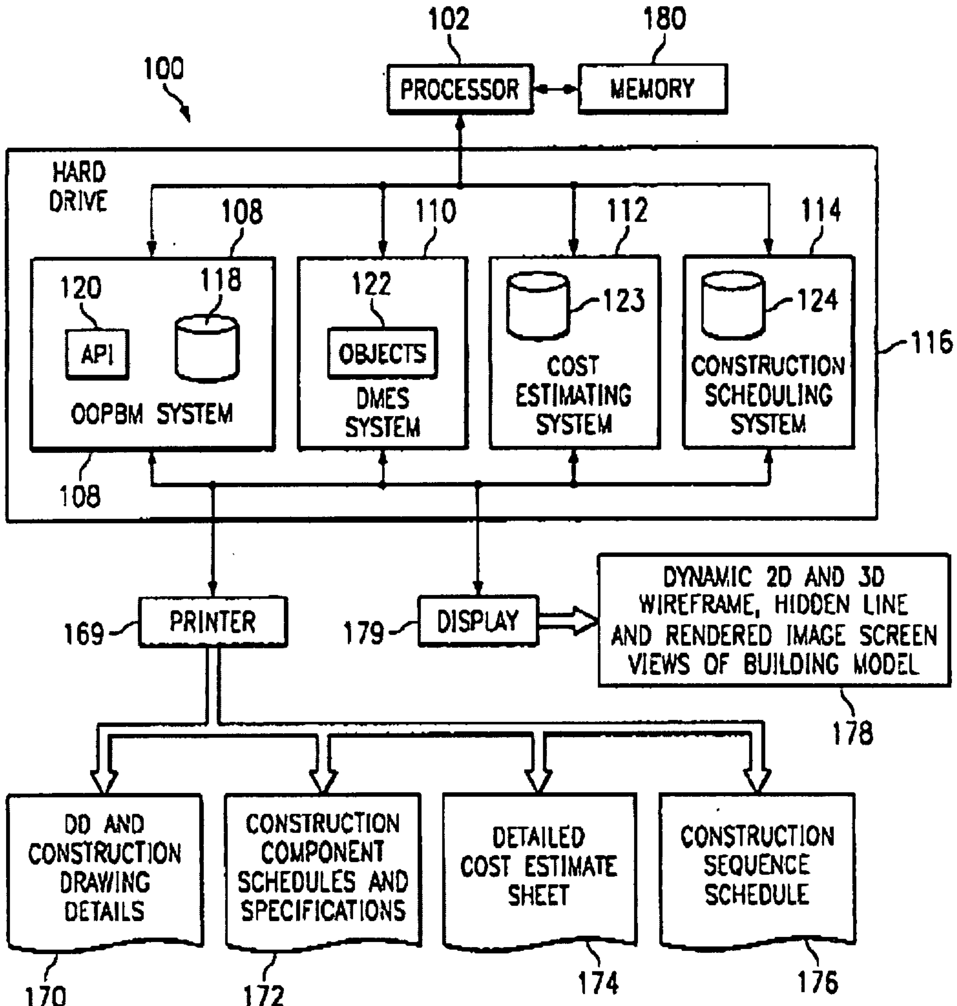


Fig. 1

Figure 1: Wakelam et al.

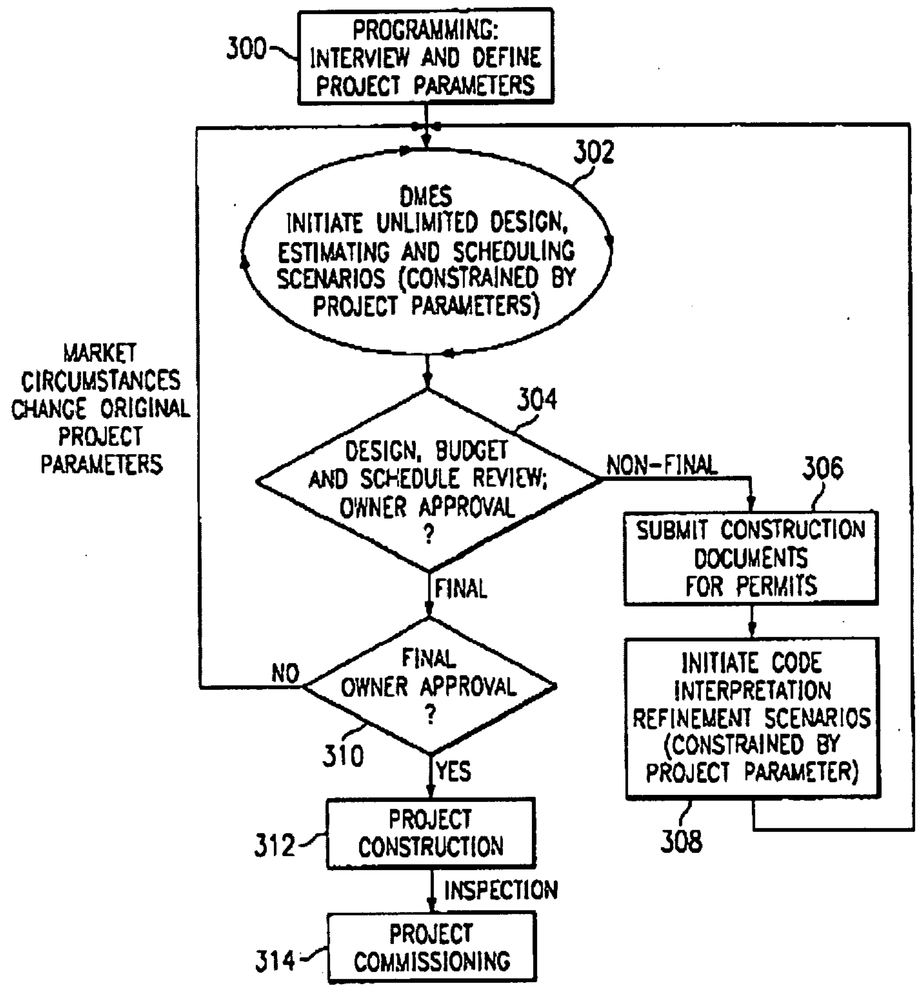


Fig. 3

Figure 2: Wakelam et al.

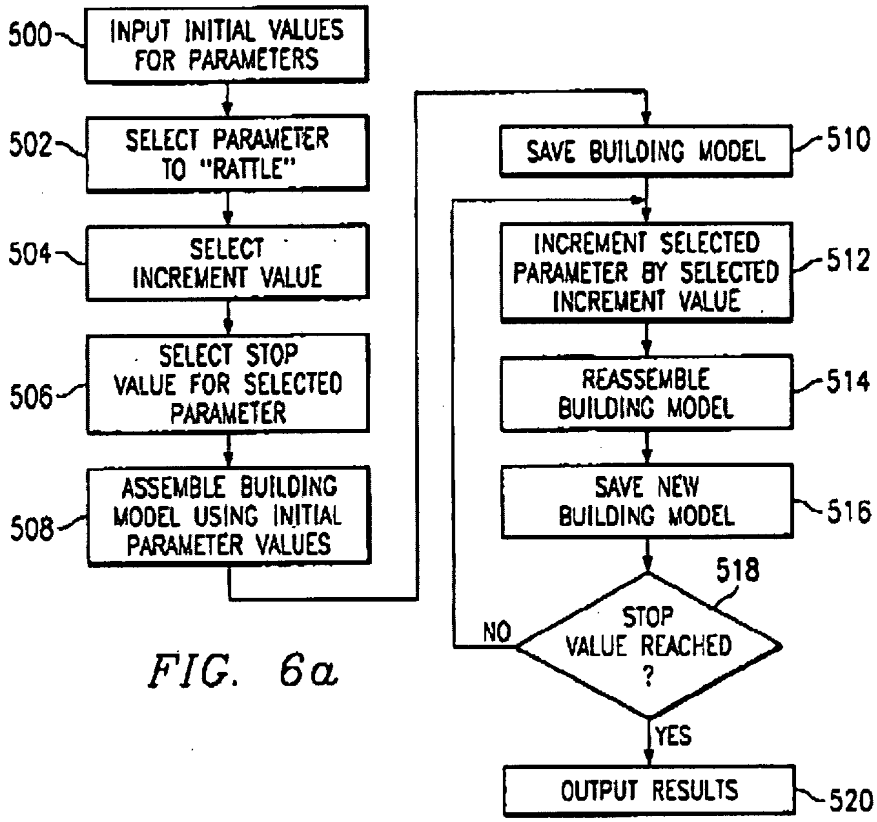


FIG. 6a

Figure 3: Wakelam et al.

Regarding Claim 2 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria wherein the items are stored in at least one database and each item has an associated first and second item value (spatial database, element libraries; Abstract; Column 11, Lines 1-60; Column 3, Lines 34-46; Column 8, Lines 17-37, 46-68; Column 9, Lines 8-15; Column 12, Lines 12-24 Figure 1, Elements 118, 122, 123, 124).

Regarding Claim 3 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria further comprising calculating a first project value based on the project information and criteria and determining sets of items that are in compliance (meet, achieve, reach, etc.) with the calculated first project value (e.g. budget compliance, code compliance, client requirement compliance, etc.; Column 3, Lines 34-46; Column 4, Lines 1-9, 60-68; Column 5, Lines 1-15, 68-68; Column 9, Lines 40-45; Column 14, Lines 16-55; Figure 3).

> "This process continues autonomously as thus described for each branch of the hierarchy 200 down through the Quantity element 202g until a complete building model has been assembled from the appropriate library elements as **constrained by the defined project parameters**.", emphasis added, Column 3, Lines 34-37

Regarding Claim 4 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria further comprising iterating through combinations of first item values and determining sets of items that are in compliance with the first project value based on the iterated combinations (design alternatives, rattling the box, continual feedback loop, redesign based on updated parameters, redesign based on element clashes, automatic self-assembly; etc.; Column 4, Lines 37-59; Column 5, Lines 1-15, 42-68; Column 13, Lines 5-33; Column 14, Lines 13-55; Column 18, Lines 34-68; Column 19, Lines 1-46; Appendix A; Figures 3, 6a).

> "Execution begins in step 300 responsive to a request from a client to develop a project scenario. In step 300, **parameters for the project are defined and input** to the DMES system 110 as described below. Examples of project parameters include, but are not limited to, number of floors, total gross area, floor plate area, type of structure, and cladding systems. Upon completion of step 300, execution proceeds to step 302, in which a DMES process, implemented via the DMES system 110, is initiated. As described herein, and as generally shown and described with reference to FIG. 1a, the DMES process of step 302 is a **continual feedback loop that produces a variety of building models and associated project scenarios, including cost estimates and**

> **construction schedules**, intended to distill the vision of the client into a comprehensive solution, including a building model, **cost estimate**, and **construction schedule**, which is submitted to the client for design, **budget**, and **schedule review** and **approval** (step 304) and then forwarded to the appropriate authorities for code review and permitting purposes (step 306). In particular, the DMES process (step 302) results in the development of construction documentation, including construction drawings, details, specifications, renderings, movie paths, and shop drawings, **itemized budgets**, and detailed **construction schedules**, which are simultaneously produced for each building model.", Column 14, Lines 16-43, emphasis added

Regarding Claim 5 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria further comprising calculating second project value based on the project information wherein the step of iterating begins at a first combination of first item values based on the second project value (Column 4, Lines 37-59; Column 5, Lines 1-15, 42-68; Column 13, Lines 5-33; Column 14, Lines 13-55; Column 18, Lines 34-68; Column 19, Lines 1-46; Appendix A; Figures 3, 6a).

Regarding Claim 6 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria wherein the at least one database further comprises a table comprising a plurality of second project values and associated combinations of first item values (estimates database, design/building model database, scheduling database, etc.; Column 9, Lines 8-68; Figure 1, Elements 118, 122, 123, 124; Figures 3, 6a).

Regarding Claim 7 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria wherein each set value is a combination of the second item values associated with each set of items (cost, materials, quantities,

labor, installation, schedule, building model/configuration, massing elements, etc.; Column 8, 16-37; Column 9, Lines 1-65; Column 12, Lines 11-36; Column 14, Lines 15-45; Figures 2a-2k, 3).

Regarding Claim 13 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria wherein each second item value is an item cost (cost estimate database; Column 9, Lines 8-31; Column 12, Lines 11-24; Column 14, Lines 16-43; Column 19, Lines 18-37; Figure 1, Element 123; Figures 1b, 2b-2c, 3, 6a).

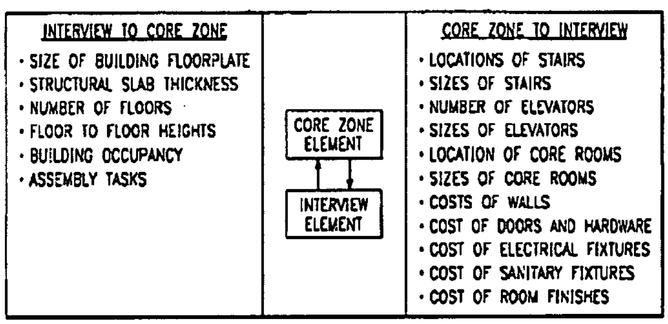


Fig. 2b

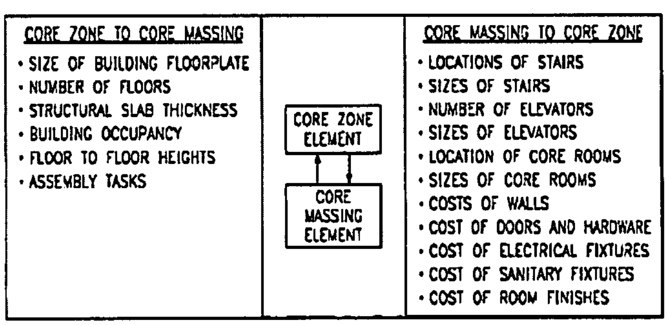


Fig. 2c

Figure 4: Wakelam et al.

Regarding Claim 14 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria wherein the criteria is established based on the inputted project information (Column 2, Lines 1-10, 48-60; Column 8, Lines 16-37, 55-68; Column 10, Lines 6-56; Column 20, Lines 12-29; Figures 3, 6a).

Regarding Claim 15 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria wherein the criteria comprises a portion of a building code (Column 2, Lines 1-10; Column 8, Lines 25-37; Column 14, Lines 43-55); Figure 3, Elements 306, 308).

Regarding Claim 17 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria wherein the inputted project information comprises structural information (Column 2, Lines 11-36; Column 3, Lines 34-46; Column 14, Lines 15-43; Column 17, Lines 36-68; Figures 3; 2a-2d; 4a-5f).

Regarding Claim 18 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria wherein the project information comprises structural information including information on main walls, ceilings, floors, basement walls, doors, glazing, slab perimeter *or* crawl space walls (Column 2, Lines 11-36; Column 3, Lines 34-46; Column 14, Lines 15-43; Column 17, Lines 36-68; Figures 3; 2a-2d; 4a-5f).

Regarding Claim 19 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria wherein the project information includes mechanical equipment information (e.g. HVAC, elevator, etc.; Column 8, Lines 30-45; Column 11, Lines 1-24; Column 13, Lines 51-68; Column 14, Lines 1-4; Figures 2a, 2f).

Regarding Claim 25 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria wherein each item comprises information on one type of building material *or* type of building system (Column 10, Lines 57-68; Column 11, Lines 1-25; Figures 2a-2k; Appendix B).

Regarding Claim 30 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria further comprising updating second item values (Column 4, Lines 38-59; Column 5, Lines 1-15; Column 19, Lines 1-37; Figure 4b).

Regarding Claim 31 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria further comprising sending a document (information, data, text, etc.) updated second item value information to a system (administrative server, subsystem, component, code, subroutine, etc.) to update the at least one database (Column 3, Lines 47-56; Column 4, Lines 38-59; Column 5, Lines 1-15; Column 19, Lines 1-37; Figure 4b).

> "the estimate database 123 is designed such that the **cost data contained therein may be periodically updated either automatically or manually** via local or remote access

> thereto. For example, in a web-based implementation of the present invention, it would be possible for one or more authorized individuals to upload updated cost data to the database 123 on the web server. Alternatively, it would be possible for one or more authorized individuals to download such **updated cost data** to the database 123 stored on a computer connected to a network server or to manually update the data by directly accessing the database and changing selected data.", emphasis added, Column 9, Lines 20-31

Regarding Claim 32 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria further includes contractor (labor, subcontractor, supplier, vendor, staff, personnel, etc.) including installation information and costs (Column 3, Lines 35-57; Column 9, Lines 32-65; Column 12, Lines 11-24; Column 13, Lines 10-15).

Regarding Claim 33 Wakelam et al. teach a system for selecting a set of items that meet a given criteria (requirements, parameters, etc.) when included within a project comprising:

- a central computer having processor and an input device for receiving project information (Figure 1);

- at least one database having a list of items that may be used in constructing the project and a first value for each of the items (Abstract; Column 11, Lines 1-60; Column 3, Lines 34-46; Column 8, Lines 17-37, 46-68; Column 9, Lines 8-15; Column 12, Lines 12-24 Figure 1, Elements 118, 122, 123, 124);

- code for determining sets of items that may be used in constructing the project (Column 3, Lines 12-46; Column 4, Lines 38-59; Column 5, Lines 1-15, 41-68; Column 14, Lines 15-55; Figure 6a);

- code for calculating a total first values for each of the sets of items (Column 3, Lines 12-46; Column 4, Lines 38-59; Column 5, Lines 1-15, 41-68; Column 14, Lines 15-55; Figure 6a);

- code for selecting a set of items based on the calculated total first values (Column 3, Lines 12-46; Column 4, Lines 38-59; Column 5, Lines 1-15, 41-68; Column 14, Lines 15-55; Column 17, Lines 35-68; Column 18, Lines 1-49; Column 19, Lines 1-37; Figure 3, Elements 302, 308; Figure 6a-6b); and

- code for displaying to a user the selected set of items (Column 4, Lines 1-14; Column 19, Lines 1-37; Figure 1, Elements 169, 170, 172, 174, 176, 178-179; Figure 1a, Element 160; Figures 5a-5l; Figure 6a, Element 520).

Regarding Claim 34 Wakelam et al. teach a system for selecting items for a project wherein each of the items is a building material and a building system (Column 10, Lines 57-68; Column 11, Lines 1-25; Figures 2a-2k, Appendix B), the project is a structure (Abstract), each first value is an item cost and each total first value is the sum material costs of the set of items (Column 3, Lines 47-56; Column 4, Lines 38-59; Column 5, Lines 1-15; Column 9, Lines 20-31; Column 19, Lines 1-37; Figures 2b-2c, 4b, 6a-6b).

Regarding Claim 42 Wakelam et al. teach a system for selecting items for a project wherein the central computer comprises a network server and further comprises at least one computer that is adapted to be connected to the network server over a

network to transmit structure information to the network server (Column 5, Lines 57-68; Column 7, Lines24-52; Column 17, Lines 63-68; Figures 1, 1a).

Regarding Claim 82 Wakelam et al. teach a system of selecting items for a project wherein one type of building system is a HVAC system (HVAC; Column 8, Lines 30-45; Column 11, Lines 1-24; Column 13, Lines 51-68; Column 14, Lines 1-4; Figures 2a, 2f).

Regarding Claim 84 Wakelam et al. teach a system of selecting items for a project further comprising analyzing interactions between at least two items based on their associated first item and second item values (redesign, rattling the box, design/model iteration, cross-checking, clash detection, etc.; Column 4, Lines 38-59; Column 13, Lines 22-33; Column 18, Lines 34-68; Column 19, Lines 1-37; Figures 6a-6b).

Regarding Claim 85 Wakelam et al. teach a system of selecting items for a project further comprising analyzing interactions between at least one of the items and a structural component based on an associated first item value and second item value (Column 4, Lines 38-59; Column 13, Lines 22-33; Column 18, Lines 34-68; Column 19, Lines 1-37; Figures 6a-6b).

Regarding Claim 89 Wakelam et al. teach a system of selecting items for a project wherein the project information includes a comprising a computer-aided design file (Column 1, Lines 8-39; Column 4, Lines 26-37; Column 18, Lines 3-16).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 8-12, 16, 20-23, 26, 35-38, 43 and 87 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wakelam et al., U.S. Patent No. 6,859,768 as applied to claims 1-7, 13-15, 17-19, 25, 30-34, 42, 82, 84-85 and 89 above and further in view of MECcheck Software User's Guide Version 3.0 (April 2000, MECcheck).

Regarding Claims 8 and 35 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria further comprising determining and displaying the set with the lowest set value (optimum design, cost maxima/minima; Column 18, Lines 33-59; Column 18, Lines 40-59; Column 19, Lines 1-43; Column 20, Lines 5-11; Figures 6a, 6b).

> "If in step 518 it is determined that the current value of the selected parameter is equal to (or exceeds) the selected stop value, execution proceeds to step 520, in which the results are output, preferably in the form of a graph to enable a user quickly and easily to **determine the cost maxima and minima.**", Column 19, Lines 32-37, emphasis added

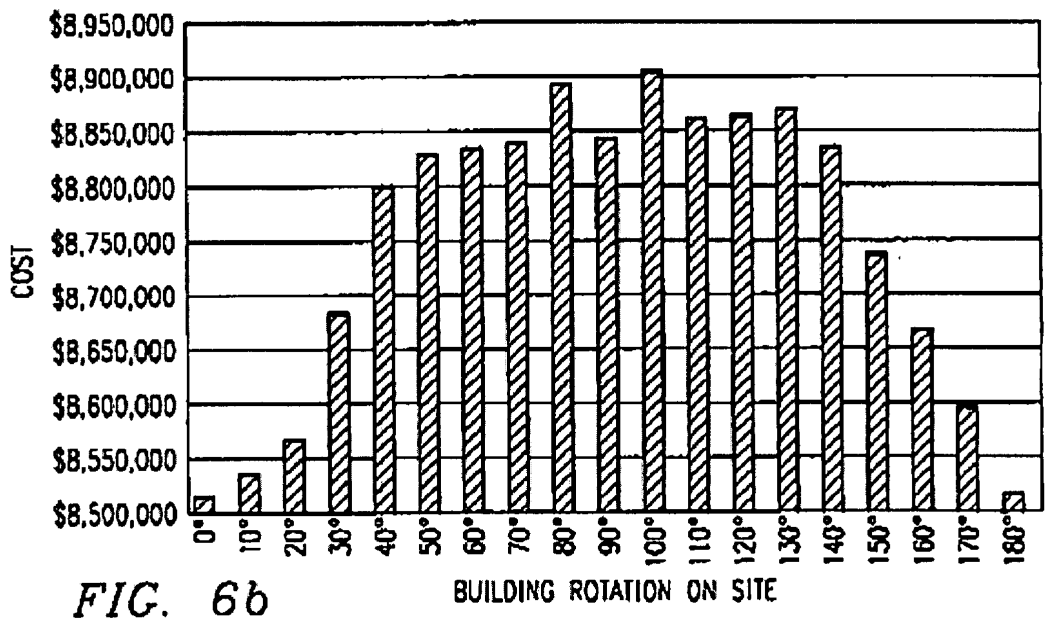


FIG. 6b

Figure 5: Wakelam et al.

While Wakelam et al. teach selecting sets of items that meet a plurality of project criteria including financial budget (Column 14, Lines 33-40) and performing cost comparisons between alternative design models Wakelam does not expressly teach selecting items with the lowest total value as claimed.

MECcheck teaches selecting project items that have the lowest value and/or values that optimize one or more building energy codes/standards (criteria) in an analogous art of project performance evaluation for the purposes of ensuring that a project's selected set of items complies with building energy codes (e.g. minimum R-value, trade-off analysis, etc.; Introduction: Pages 1, 4-5; Appendix D: Trade-off Worksheet Guide, Pages 1-3; Software Overview: Compliance Example, Pages 27-30).

More generally MECcheck teaches determining that a set of selected items is in compliance with a set of project values (e.g. energy/building codes) in an analogous art of project performance analysis for the purposes of ensuring (guaranteeing) that a project meets with applicable building codes prior to, during and after construction (Introduction: Pages 1, 4-5).

MECcheck teaches a computer-implemented method and system for selection items of a project within criteria comprising:

- inputting project information including project criteria (Software User's Guide: Pages 6-16);

- determining with a computer sets of items based on the project information that meet the project criteria (Compliance Example, Pages 27-29);

- calculating for each set of items two or more values (first, second, total first/second value, attributes, parameters, cost, energy usage, comfort, performance, etc.; Software User's Guide: Last Paragraph, Page 3; Paragraph 1, Page 4; Compliance Example, Pages 27-29);

- selecting a set of items based on the one or more calculated values (Steps 1-5, Page 4; Figure 1; Software User's Guide, Pages 1, 22; Compliance Example, Pages 27-29); and

- displaying to a user the selected set of items that meet the project criteria (Figure 1; Compliance Example, Pages 27-29).

MECcheck further teaches a system and method for evaluating the performance of a selected set of items (e.g. a building design) wherein the performance is defined by

the project's compliance to selected building energy codes such as maximum U-factors, minimum R-values, insulation, HVAC, windows and the like (Introduction: Pages 1, 4-5). and further wherein building energy codes specify the thermal envelope requirements for the project.

MECcheck further teaches that the system and method for selecting/evaluating items, such as insulation and windows, for a construction project is part of an iterative design process wherein trade-offs are made amongst the various project items (Software Overview: "...enables you to quickly compare different insulation levels in different parts of your building to arrive at a package that works best for you.", Page 1; Page 27). MECcheck teaches that the system utilizes project structural, weather, material, mechanical equipment (HVAC) and other information to evaluate the performance of the selected project items (Appendix C: Building Envelope, Pages 1-2; Software Overview: Pages 15-21, 27-29).

MECcheck further teaches that the project performance analysis system and method provides information such as maximum UA, your UA as well as percent better/worse than code (Software Overview: Pages 3-4, 15-21, 27-29).

It would have been obvious to one skilled in the art at the time of the invention that the system and method of selecting items for projects that meet a plurality of criteria as taught by Wakelam et al. would have benefited from minimizing item values (e.g. minimum R-value) in view of the teachings of MECcheck; the resultant system enabling building decision-makers to design and evaluate buildings (i.e. select items) that do not

over and/or under comply/meet with project criteria and/or codes (MECcheck: Software Overview: Page 4, Paragraph 1).

Regarding Claim 9 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria further comprising presenting a display of the set of items with the lowest set value (Column 18, Lines 33-59; Column 18, Lines 40-59; Column 19, Lines 1-43; Column 20, Lines 5-11; Figures 6a, 6b).

Regarding Claim 10 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria wherein the project values include a plurality of well-known values including values related to insulation, glass solar gain, building codes and regulations and the like (Column 8, Lines 25-37; Column 10, Lines 57-68; Column 11, Lines 1-24; Figures 2a-2k).

Wakelam et al. does not expressly teach that the project values include a UA value (UA= U-factor x area) as claimed.

MECcheck teaches that a project value is a UA value, in an analogous art of project performance evaluation, for the purposes of evaluating and ensuring that the thermal performance of a building (e.g. UA value) complies with building energy codes (Introduction: Page 5, Bullet 1; Software Overview: Pages 1, 3-4; Appendix B: Pages 1-2, Definitions: Page 3).

It would have been obvious to one skilled in the art at the time of the invention that the computer-implemented method of selecting items for a project within criteria as taught by Wakelam et al. would have benefited from determining/evaluating a project's UA value/factor in view of the teachings of MECcheck; the resultant system/method enabling users to evaluate the project's overall energy performance and/or to ensure that the selected set of items for the project comply with building energy codes (MECcheck: Introduction: Pages 1, 4-5).

Regarding Claim 11 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria wherein the project values include a plurality of well-known values including values related to insulation, glass solar gain, building codes and regulations and the like (Column 8, Lines 25-37; Column 10, Lines 57-68; Column 11, Lines 1-24; Figures 2a-2k).

Wakelam et al. does not expressly teach that a project value is a glazing *area percentage* as claimed.

MECcheck teaches that a project value is a glazing area in analogous art of project performance evaluation for the purposes of selecting items that meet/comply with project criteria such as building energy codes (MECcheck: Appendix B: Pages 1-2; Definitions Page 3; Software Overview: Page 15).

MECcheck further teaches representing glazing area values as decimals and fractions (the mathematical equivalent percentages; Appendix B, Pages 1-2).

It would have been obvious to one skilled in the art at the time of the invention that the computer-implemented method of selecting items for a project within criteria as taught by Wakelam et al. would have benefited utilizing glazing *area* values as part of the design evaluation process in view of the teachings of MECcheck; the resultant system enabling users to determine/select the glazing area that meet the design requirements and/or building energy codes (BDA: reference C: "The design decision is now reduced to finding a glazing, which will reduce energy requirements to the extent possible.", Column 2, Paragraph 2, Page 4).

Neither Wakelam et al. nor MECcheck expressly teach that the glazing area is represented as a percentage as claimed.

Official notice is taken that representing values using percentages is old and very well known, specifically it is old and well known to represent project (building, etc.) glazing values using glazing area percentages wherein such percentages represent the portion (fraction, percent) of a structure having windows, doors or other fenestration elements.

Support that it is old and well known to represent project (building, etc.) glazing values using glazing area percentages wherein such percentages represent the portion

(fraction, percent) of a structure having windows, doors or other fenestration elements can be found in at least the following reference RESFEN 3.1 A PC Program for Calculating the Heating and Cooling Energy Use of Windows in Residential Buildings (1999; Last Paragraph, Page 5-4; Figure 5-5; Paragraph 1, Page 5-10; Figures 5-15 and 5-16).

It would have been obvious to one skilled in the art at the time of the invention that the computer-implemented method of selecting items for a project within criteria wherein at least one of the criteria includes a glazing area as taught by the combination of Wakelam et al. and MECcheck would have benefited from representing the fraction/portion of the building/envelope (project, structure, item, component, etc.) having fenestration (windows, doors, etc.) in view of the teachings of official notice.

Regarding Claim 12 Wakelam et al. does not expressly teach that one of the project values is an R-value as claimed.

MECcheck teaches that one of the project values is an R-value in an analogous art of project performance evaluation for the purposes of ensuring that a set of selected items (design) meets building energy codes (Introduction: Page 5, Bullet 1; Page 6; Definition: Page 4).

It would have been obvious to one skilled in the art at the time of the invention that the computer-implemented method of selecting items for a project within criteria as taught by Wakelam et al. would have benefited utilizing R-values as part of the design evaluation process in view of the teachings of MECcheck; the resultant system enabling users to determine/select the insulation and other project items that meet the design requirements and/or building energy codes (minimum R-value, trade-off analysis, etc.; MECcheck: Compliance Example, Pages 27-29; Appendix D: Pages 1-2).

Further regarding Claims 10-12 it is noted that the specific labels applied to the one or more project value(s) represent non-functional descriptive material and are not functionally involved in the steps recited nor do they alter the recited structural elements. The recited method steps would be performed the same regardless of the specific labels applied to the project value(s). Further, the structural elements remain the same regardless of the labels applied to the project value(s). Thus, this descriptive material will not distinguish the claimed invention from the prior art in terms of patentability, *see In re Gulack, 703 F.2d 1381, 1385, 217 USPQ 401, 404 (Fed. Cir. 1983); In re Lowry, 32 F.3d 1579, 32 USPQ2d 1031 (Fed. Cir. 1994); MPEP § 2106.*

Regarding Claim 16 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria wherein the criteria includes building codes and regulations (Column 8, Lines 25-45).

> "This automatic DMES process encapsulates the knowledge and expertise of the designers and engineers, and the **rules and codes of the construction industry**

> **specialists and regulatory bodies**. It accepts the design requirements of the building owner, or customer, then automatically generates the appropriate building design in the form of a coordinated building model and generates the coordinated design documents necessary to construct the building.", emphasis added; Column 4, Lines 1-13

While building codes comprising energy codes are well known in the construction industry Wakelam et al. does not expressly teach that one of the criteria for selecting items comprises an energy code as claimed.

MECcheck teaches selecting/evaluating project items based on the selected item(s) ability to meet/comply with a building energy code in an analogous art of evaluating the performance of project designs for the purposes of ensuring that a project meets applicable building codes prior to, during and after construction (Introduction: Pages 1, 4-5; Software Overview: Pages 25-26).

It would have been obvious to one skilled in the art at the time of the invention that the computer-implemented method of selecting items for a project within criteria as taught by Wakelam et al. would have benefited from further evaluating the selected project items ability to meet/comply with building energy codes in view of the teachings of MECcheck; the resultant system enabling building-decision-makers to ensure their project design comply with local/national building codes (Introduction: Pages 1, 4-5).

Regarding Claims 20 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria wherein the project information comprises mechanical equipment including HVAC information, as discussed above,

While it is old and very well known that HVAC comprising air conditioners heaters, Wakelam et al. does not expressly teach that the mechanical equipment comprises a forced air furnace, boiler, heat pump *or* air conditioner as claimed.

MECcheck teaches that the system utilizes project structural, weather, material, mechanical equipment (HVAC) and other information to evaluate the performance of the selected project items (Appendix C: Building Envelope, Pages 1-2; Software Overview: Pages 15-21, 27-29) wherein the mechanical equipment includes forced air furnace, boiler, heat pump *or* air conditioner.

It would have been obvious to one skilled in the art at the time of the invention that the computer-implemented method of selecting items for a project within criteria as taught by Wakelam et al. would have benefited from including forced air furnace, boiler, heat pump *or* air conditioner in view of the teachings of MECcheck; the resultant system enabling users to evaluate the performance of the selected project items (MECcheck: Appendix C: Building Envelope, Pages 1-2; Software Overview: Pages 15-21, 27-29).

Further regarding Claim 20 it is noted that the specific labels applied to the one or more mechanical equipment items represent non-functional descriptive material and are not functionally involved in the steps recited nor do they alter the recited structural elements. The recited method steps would be performed the same regardless of the specific labels applied to the mechanical equipment items. Further, the structural elements remain the same regardless of the labels applied to the mechanical equipment items. Thus, this descriptive material will not distinguish the claimed invention from the prior art in terms of patentability, *see In re Gulack, 703 F.2d 1381, 1385, 217 USPQ 401, 404 (Fed. Cir. 1983); In re Lowry, 32 F.3d 1579, 32 USPQ2d 1031 (Fed. Cir. 1994); MPEP § 2106.*

Regarding Claim 21 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria wherein the system/method automatically redesigns (selects items) based on modified project information including market parameters, design/project criteria and/or item clashes (Column 4, Lines 38-59; Column 5, Lines 1-15; Column 19, Lines 1-37; Figure 4b).

Wakelam et al. further teach that the system and method of selecting items for a project is applicable to both new and renovation (i.e. upgrade) projects (Column 1, Lines 12-27).

Wakelam et al. does not expressly teach that the project information comprises upgrade information as claimed.

MECcheck teaches analyzing additions/renovations/alterations to existing projects/structures (i.e. upgrades, improvements, etc.) wherein the project information comprises upgrade information and calculating a project value further comprises increasing the project value based on the upgrade information and re-determining sets of items that are in compliance with the increased project value in an analogous art of project performance evaluation for the purposes of ensuring added/updated project items comply with building codes (Introduction: "What buildings must comply?", Page 1; Appendix A: Additions Pages 1-2; Definitions: Additions, Alterations, Page 1).

It would have been obvious to one skilled in the art at the time of the invention that the computer-implemented method of selecting items for a project within criteria as taught by Wakelam et al. would have benefited from analyzing both new and existing projects/structures (upgrades, retrofit, update, renovations, additions, etc.) in view of the teachings of MECcheck; the resultant system and method enabling building decision-makers to compare/contrast alternative building/project designs (selected sets of components) thereby ensuring upgrade projects comply with building codes and/or to analyze the expected/predicted/estimated benefits of the new/upgraded project (MECcheck: Overview: Pages 1, 4-5; Appendix A: Additions, Pages 1-2).

Regarding Claim 22 Wakelam et al. does not expressly teach that the project information further comprise at least one energy saving component as claimed.

MECcheck teaches analyzing additions/renovations/alterations to existing projects/structures (i.e. upgrades, improvements, etc.) wherein the project information comprises upgrade information and calculating a project value further comprises increasing the project value based on the upgrade information and re-determining sets of items that are in compliance with the increased project value in an analogous art of project performance evaluation for the purposes of ensuring added/updated project items comply with building codes (Introduction: "What buildings must comply?", Page 1; Appendix A: Additions Pages 1-2; Definitions: Additions, Alterations, Page 1).

MECcheck further teaches that at least one project item/component is an energy saving component (e.g. HVAC efficiency; Software Overview: Page 22).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items within project criteria as taught by Wakelam et al. would have benefited from analyzing both new and existing projects/structures (upgrades, retrofit, update, renovations, additions, etc.) in view of the teachings of MECcheck; the resultant system and method enabling building decision-makers to compare/contrast alternative building/project designs (selected sets of components) thereby ensuring upgrade projects comply with building codes and/or to

analyze the expected/predicted/estimated benefits of the new/upgraded project (MECcheck: Overview: Pages 1, 4-5; Appendix A: Additions, Pages 1-2).

Regarding Claim 23 Wakelam et al. does not expressly teach indicating information regarding an efficiency percentage upgrade as claimed.

MECcheck teaches indicating a percentage upgrade (improvement, efficiency, percent better/worse) than an energy baseline/code/standard in an analogous art of project item performance analysis and evaluation for the purposes of indicating the extent to which a selected set of items (design) meets the building codes (Software Overview: Pages 3-4, 15-21, 27-29).

It would have been obvious to one skilled in the art at the time of the invention that the computer-implemented method of selecting items for a project within criteria as taught by Wakelam et al. would have benefited from indicating the extent to which a design (news, existing, upgrade, set of items, etc.) does or does not meet a baseline/expected result and/or represents an improvement in view of the teachings of MECcheck; the resultant system enabling building decision-makers to readily discern whether or not their design meets given project criteria (MECcheck: Software Overview: Page 5).

Regarding Claim 26 Wakelam et al. does not expressly teach that a type of building material is an insulation material as claimed.

MECcheck teaches that one of the project items/components is insulation having R-values in an analogous art of project performance evaluation for the purposes of ensuring that a set of selected items (design) meets building energy codes (Introduction: Page 5, Bullet 1; Page 6; Definition: Page 4).

It would have been obvious to one skilled in the art at the time of the invention that the computer implemented method for selecting project items within criteria as taught by Wakelam et al. would have benefited modeling insulation as part of the design process in view of the teachings of MECcheck; the resultant system enabling users to determine/select the insulation and other project items that meet the design requirements and/or building energy codes (minimum R-value, trade-off analysis, etc.; MECcheck: Compliance Example, Pages 27-29; Appendix D: Pages 1-2).

Regarding Claim 36 Wakelam et al. does not expressly teach that the items comprise different types of insulation, that the criteria is an energy code that uses a UA value for a given structure, or calculating a UA value for the project/structure or determining sets of insulation that maybe use in constructing the structure in compliance with the UA value as claimed.

MECcheck teaches a system and method for evaluating/analyzing project the comply with codes/standards, in an analogous art of project/item performance, further comprising:

- the selection/utilization of a plurality of well known insulation types including but not limited to blown, sprayed, (Basic Requirements Guide: Page 5), cavity insulation (Software Overview: Page 9), duct insulation (Basic Requirements Guide: Pages 5-6), HVAC piping insulation (Base Requirements Guide: Page 9), slab insulation (Definitions: Page 5), rigid foam (Software Overview: Page 9) and the like as well as defining various levels/depths of insulation by location (structural components);
- project criteria that is an energy code and that comprises a UA value for a given structure (Software Overview: Pages 9; Basic Requirements: Pages 5-6); and
- determining sets of insulation, in compliance with the energy code UA value, to be used in constructing the project by calculating a UA value based on at least part of the structure information and energy code (Introduction: Pages 1, 4-5; Software Overview: Pages 1, 3-4, 22; Paragraph 2, Page 8; Compliance Examples, Pages 27-30).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items within project criteria as taught by Wakelam et al. would have benefited from modeling/evaluating several types of insulations and their associated code UA values in view of the teachings of MECcheck; the resultant system enabling designers to ensure their designs (alternative selections

of building materials/equipment/items) comply with building codes/standards (MECcheck: Introduction: Pages 1, 4-5).

Regarding Claim 37 Wakelam et al. does not expressly teach that the project information includes glazing area percentages associated with items used in constructing the project/structure while complying with an energy code, calculating at least one glazing area percentage or determining sets of items associated with the glazing area percentage as claimed.

MECcheck teaches that at least one database further comprises glazing area and associated items that may be used in constructing a structure while complying with the energy code and further comprising code to calculate at least one glazing area for the structure based on the input structure information and code to determine sets of items by first determining the items that are associated with the calculated glazing area in analogous art of project performance evaluation for the purposes of selecting items that meet/comply with project criteria such as building energy codes ("Your UA", "Max UA"; Software User's Guide: Last Paragraph, Page 3; Windows, gross area, U-Factor, UA value; Page 15; Appendix B: Pages 1-2; Definitions Page 3).

MECcheck further teaches representing glazing area values as decimals and fractions (the mathematical equivalent percentages; Appendix B, Pages 1-2).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for designing projects/structures that meet a plurality of criteria as taught by Wakelam et al. would have benefited utilizing glazing *area* values as part of the design evaluation process in view of the teachings of MECcheck; the resultant system enabling users to determine/select the glazing area that meet the design requirements and/or building energy codes.

Wakelam et al. and MECcheck do not expressly teach that the glazing area is represented as a *percentage* as claimed.

Official notice is taken that representing values using *percentages* is old and very well known, specifically it is old and well known to represent project (building, etc.) glazing values using glazing area percentages wherein such percentages represent the portion (fraction, percent) of a structure having windows, doors or other fenestration elements.

Support that it is old and well known to represent project (building, etc.) glazing values using glazing area percentages wherein such percentages represent the portion (fraction, percent) of a structure having windows, doors or other fenestration elements can be found in at least the following reference RESFEN 3.1 A PC Program for Calculating the Heating and Cooling Energy Use of Windows in Residential Buildings (1999; Last Paragraph, Page 5-4; Figure 5-5; Paragraph 1, Page 5-10; Figures 5-15 and 5-16).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for designing and evaluating projects/structures that meet a plurality of performance criteria wherein at least one of the criteria includes a glazing area as taught by the combination of Wakelam et al. and MECcheck would have benefited from representing the fraction/portion/percentage of the building/envelope (project, structure, item, component, etc.) having fenestration (windows, doors, etc.) in view of the teachings of official notice.

Regarding Claim 38 Wakelam et al. teach a system for selecting items for a project further comprising code to evaluation combinations of items, for example changing/modifying project criteria or specifying project criteria as ranges, in order to compare as well as optimize structure/building models (auto redesign, closed loop feedback, design iteration, rattle the box, etc.), as discussed above.

Wakelam et al. does not expressly teach that one of the project criteria is glazing area percentages as claimed.

MECcheck teaches comparing selected items for a project including the evaluation of glazing area as discussed above. MECcheck further teaches that the system and method for selecting project items that comply with building codes/standards further comprises identifying the closeness (e.g. percent better/worse) of the selected project items (building design) to the building codes/standards for the

purposes of enabling designers (users, architects, building decision-makers) to adjust their designs (e.g. make trade-offs, choose different components, etc.) in order to more closely meet the building codes/standards (Software Overview: Page 3; Page 4, Paragraph 1).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items within criteria as taught by Wakelam et al. would have benefited from evaluating/analyzing UA factors/values and selecting project items that comply with building energy codes based at least in part on those UA values in view of the teachings of MECcheck; the resultant system enabling designers to select project items that comply with building codes by enabling them to select a set of items that is closets to the required codes/standards (Software Overview: Page 3; Page 4, Paragraph 1).

Wakelam et al. and MECcheck do not expressly teach that the glazing area is represented as a *percentage* as claimed.

Official notice is taken that representing values using *percentages* is old and very well known, specifically it is old and well known to represent project (building, etc.) glazing values using glazing area percentages wherein such percentages represent the portion (fraction, percent) of a structure having windows, doors or other fenestration elements, as discussed above.

It would have been obvious to one skilled in the art at the time of the invention that the system and method for designing and evaluating projects/structures that meet a plurality of performance criteria wherein at least one of the criteria includes a glazing area as taught by the combination of Wakelam et al. and MECcheck would have benefited from representing the fraction/portion of the building/envelope (project, structure, item, component, etc.) having fenestration (windows, doors, etc.) in view of the teachings of official notice.

Regarding Claim 43 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria further comprising sending a document (information, data, text, etc.) updated second item value information to a system (administrative server, subsystem, component, code, subroutine, etc.) to update the at least one database (Column 3, Lines 47-56; Column 4, Lines 38-59; Column 5, Lines 1-15; Column 19, Lines 1-37; Figure 4b).

Regarding Claim 87 Wakelam et al. does not expressly teach producing performance guarantees as claimed.

MECcheck teaches guaranteeing (ensuring) that a project achieves a target requirement (building code, performance requirement/guarantee) in analogous art of

selecting project items/components for the purposes of ensuring a project complies with the required building codes (Introduction: Pages 1, 4-5).

It would have been obvious to one skilled in the art at the time of the invention that the system and method of selecting items within a criteria as taught Wakelam et al. would have benefited from ensuring (guaranteeing) that the selected project items met the required building codes (target requirements) in view of the teachings of MECcheck; the resultant system enabling users to guarantee/certify a project's design (selected set of items) meets target requirements defined by the building codes (MECcheck: Introduction: Pages 1, 4-5).

7. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wakelam et al., U.S. Patent No. 6,859,768 in view of MECcheck Software User's Guide Version 3.0 (April 2000, MECcheck) as applied to claim 21 above and further in view of Building Design Advisor (BDA) software product (computer-implemented method and system) developed by Lawrence Berkeley National Laboratory University of California, Berkeley features, capabilities and/or *characteristics inherent* in the BDA software product being disclosed in at least the following supporting references:

I. Papamichael K. et al., Building Design Advisor: automated integration of multiple simulation tools (1997), herein after reference A;

II. Papamichael K. et al., Product modeling for computer-aided decision making (1999), herein after reference B; and

III. Papamichael K., Application of information technologies in building design decisions (1999), herein after reference C.

Regarding Claim 24 Wakelam et al. does not expressly teach determining energy consumption based on the selected set of items as claimed.

BDA teaches determining energy consumption (usage, requirements) based on the selected set of items (reference A: energy costs; Last Paragraph, Page 4; energy analysis, DOE-2; Figure 1; reference B: DOE-2, Column 1, Paragraph 1, Page 3; reference C: RESGY "is used with annual weather data distributions to compute monthly totals for energy requirements by end use and energy source.", Column 2,

Paragraph 2, Page 13; DOE-2 for energy analysis, Figure 2) in an analogous art of selecting items for a project within criteria for the purposes of providing more information regarding the project's (building/structure) performance characteristics during the design process (reference C: Paragraph 1, Page 2) .

More generally BDA teaches a method and system for selecting items (components, systems, products, materials, etc.) to be used in the construction and/or retrofit of a building (structure, office, residence, project, etc.) wherein the items are selected based on the iterative prediction and evaluation of a plurality of projects/structures (designs) performance (energy, economics, cost, environmental impact, etc.) using multiple criteria (values, parameters, etc.; reference A: Abstract; Figures 3, 5, 8; reference B: Column 1, Paragraphs 1-2, Page 1; Column 2, Paragraph 4, Page 2; Figure 1; reference C: "The main objective of the Building Design Advisor (BDA) project is to develop a computer-based tool that allows building decision-makers to quickly and easily integrate energy considerations into decision making throughout the early phases of building design.", Column 2, Paragraph 1, Page 3; Figures 1-2; Page 14).

BDA further teaches a computer-implemented method of selecting items (components, materials, elements, etc.) for a project (effort, initiative, building, etc.) within a criteria (parameter, value, threshold, energy, economics, comfort, aesthetics, etc.) comprising:

- inputting (entering, submitting, providing, etc.) project information including project criteria (schematic design editor, building browser, prototype database, CAD

files, building model, etc.; reference A: Abstract; Pages 3, 6, 11; Figures 1, 5-8; reference B: User Interface, Pages 8-9; Column 2, Last Paragraph, Page 9; Figures 7, 8, 12);

- determining (selecting, calculating, estimating, etc.) with a computer sets of items (components, elements, materials, systems, equipment, etc.) based on the project information that meet the project criteria (reference A: Abstract; ; "the user can request the computation and display of the values for all checked parameters by clicking on the Calculate button found in the main BDA window.", Last Paragraph, Page 10; Paragraph 1, Page 11; Figures 3, 5-6; Last Paragraph, Page 2; "The Decision Desktop", Pages 7-8; Last Paragraph, Page 10; Paragraph 1, Page 11; "DVS selects a default exterior wall segment type by first computing the ASHRAE recommended minimal thermal resistance based on degree-days and then selecting a wall type from the library or walls that best matches the recommended value.", Paragraph 2, Page 12; Figure 3; reference B: Column 2, Page 5; "The building model", Pages 9-10; Column 2, Paragraph 2, Page 11; Figures 1-3; reference C: Column 2, Paragraph 4, Page 1; Column 1, Paragraph 1, Page 2; Figure 1; Decision Desktop, multi-criterion decision making; Default Value Selection, Column 2, Paragraphs 1-2, Page 8; Column 2, Paragraph 2, Page 14);

- calculating (simulating, predicting, estimating, evaluating, modeling, etc.) for each set of items two or more values (first, second, total first/second value, attributes, parameters, cost, energy usage, comfort, performance, etc.; reference A: Page 3; Last Paragraph, Page 10; Paragraph 1, Page 11; Figures 3-4; reference B: Page 1; Column 1, Paragraph 1, Page 8; reference C: Column 2, Paragraph 1, Page 14);

- selecting (choosing, design selection, etc.) a set of items based on the one or more calculated values (performance, economics, decision desktop; reference A: Abstract; Figure 3; reference C: Column 2, Paragraph 1, Page 3; Figures 1-2; Decision Desktop, multi-criterion decision making; reference A: Last Paragraph, Page 2; "The Decision Desktop", Pages 7-8; Last Paragraph, Page 10; Paragraph 1, Page 11; "DVS selects a default exterior wall segment type by first computing the ASHRAE recommended minimal thermal resistance based on degree-days and then selecting a wall type from the library or walls that best matches the recommended value.", Paragraph 2, Page 12; Figure 3; reference B: Column 2, Page 5; "The building model", Pages 9-10; Column 2, Paragraph 2, Page 11; reference C: Default Value Selection, Column 2, Paragraphs 1-2, Page 8; Column 2, Paragraph 2, Page 14); and

- displaying to a user the selected set of items that meet the project criteria (building browser, decision desktop; decision desktop, building browser, etc.: reference A: Abstract; "Graphical User Interface", Page 6; Figures 1, 3-5; reference C: "User Interface", Pages 8-9; Figures 10-11; reference A: "review results from computations and data queries in a variety of graphical displays", Last Bullet, Page 3; The Graphical User Interface, Page 6; Last Paragraph, Page 10; Paragraph 1, Page 11; Figures 3, 8; reference B: Column 2, Page 4; Figures 4-6; reference C: User Interface, Pages 8-9; Figures 7, 10-12).

BDA further teaches a system for selecting a set of items that meet a given criteria when included within a project, the system comprising:

- a central computer having a processing and an input device for receiving information on a project (reference A: Paragraph 3, page 14; reference B: Figures 4-6; reference C: Information Technologies, Pages 4-5; Column 2, Paragraph 2, Page 5);

- at least one database having a list of items that may be used in constructing (assembling, building, modeling, simulating, etc.) the project and a first value for each of the items (project database, project design database, schema database, item objects having parameters, relations and methods, meta-schema, etc.; reference A: "The integrated data model", Pages 4-5; Paragraph 1, page 8; "Interfaces to Databases", Figure 1; reference B: "The schema database" "The project database", Page 6; Column 1, Paragraph 1, Page 12; Figures 2-3; reference C: Column 2, Paragraph 1, Page 5; Figure 2; reference B: Column 2, Page 2; Figure 2; reference C: Column 2, Paragraph 1, Page 5);

- code (module, program, routing, object, etc.) for determining sets of the items that *may be* used in constructing the project (Decision Desktop, multi-criterion decision making; reference A: Last Paragraph, Page 2; "The Decision Desktop", Pages 7-8; Last Paragraph, Page 10; Paragraph 1, Page 11; "DVS selects a default exterior wall segment type by first computing the ASHRAE recommended minimal thermal resistance based on degree-days and then selecting a wall type from the library or walls that best matches the recommended value.", Paragraph 2, Page 12; Figure 3; reference B: Column 2, Page 5; "The building model", Pages 9-10; Column 2, Paragraph 2, Page 11; reference C: Default Value Selection, Column 2, Paragraphs 1-2, Page 8; Column 2, Paragraph 2, Page 14);

- code for calculating a total first values for each set of items (reference A: Page 3; The Decision Desktop, Pages 7-8; "the user can request the computation and display of the values for all checked parameters by clicking on the Calculate button found in the main BDA window.", Last Paragraph, Page 10; Paragraph 1, Page 11; Figures 3, 5-6; reference B: Page 1; Column 1, Paragraph 1, Page 8; reference C: Information Technologies, Pages 4-5; Column 2, Paragraph 1, Page 14; Figure 2);

- code for selecting a set of items based on the calculated total first values (Decision Desktop, multi-criterion decision making; reference A: Last Paragraph, Page 2; "The Decision Desktop", Pages 7-8; Last Paragraph, Page 10; Paragraph 1, Page 11; Paragraph 2, Page 12; Figure 3; reference B: Column 2, Page 5; "The building model", Pages 9-10; Column 2, Paragraph 2, Page 11; reference C: Default Value Selection, Column 2, Paragraph 1, Page 3; Column 2, Paragraphs 1-2, Page 8; Column 2, Paragraph 2, Page 14)

- code for displaying to a user the selected set of items (reference A: "review results from computations and data queries in a variety of graphical displays", Bullet 7, Page 3; The Graphical User Interface, Page 6; Last Paragraph, Page 10; Paragraph 1, Page 11; Figures 3, 8; reference B: Column 2, Page 4; Figures 4-6; reference C: User Interface, Pages 8-9; Figures 7, 10-12); and

- code (software, routine, subsystem, component, object, graphical user interface, software environment, etc.) for selecting and displaying a set of items based on the calculated set of values (using a computer to select, calculate and display; Decision Desktop, Default Value Selector, Graphical User Interface, Schematic Graphic

Editor, etc.; reference A: The Graphical User Interface, Page 6; The Decision Desktop, Pages 7-8; Last Paragraph, Page 10; Paragraph 1, Page 11; Figures 3, 5-6; reference C: Information Technologies, Pages 4-5; Figure 2).

BDA teaches a system and method of selecting items of a project wherein selecting a set of items further comprises:

- selecting items (components, materials, elements, activities, etc.) based on a plurality of performance criteria including but not limited to cost (e.g. lowest initial cost, life-time cost, etc.), energy savings, and the like (cost libraries, economic analysis module, cost analysis; reference C: Column 1, Paragraph 2, Page 1; Column 1, Paragraph 1, Page 2; Column 1, Paragraph 2, Page 4; Figure 2; Decision Desktop, multi-criterion decision making; reference A: Last Paragraph, Page 2; "The Decision Desktop", Pages 7-8; Last Paragraph, Page 10; Paragraph 1, Page 11; "DVS selects a default exterior wall segment type by first computing the ASHRAE recommended minimal thermal resistance based on degree-days and then selecting a wall type from the library or walls that best matches the recommended value.", Paragraph 2, Page 12; Figure 3; reference B: Column 2, Page 5; "The building model", Pages 9-10; Column 2, Paragraph 2, Page 11); and

- presenting (providing, sending, displaying, etc.) the set of selected items as discussed above.

BDA teaches a system and method of selecting items for a project wherein the system (database) includes (reference C: "The design decision is now reduced to

finding a glazing, which will reduce energy requirements to the extent possible.", Column 2, Paragraph 2, Page 4; Column 1, Paragraph 1, Page 5):

- glazing value and associated items; and
- determining sets of items to be used in constructing the project by calculating at least one glazing value for the structure based on the structure information.

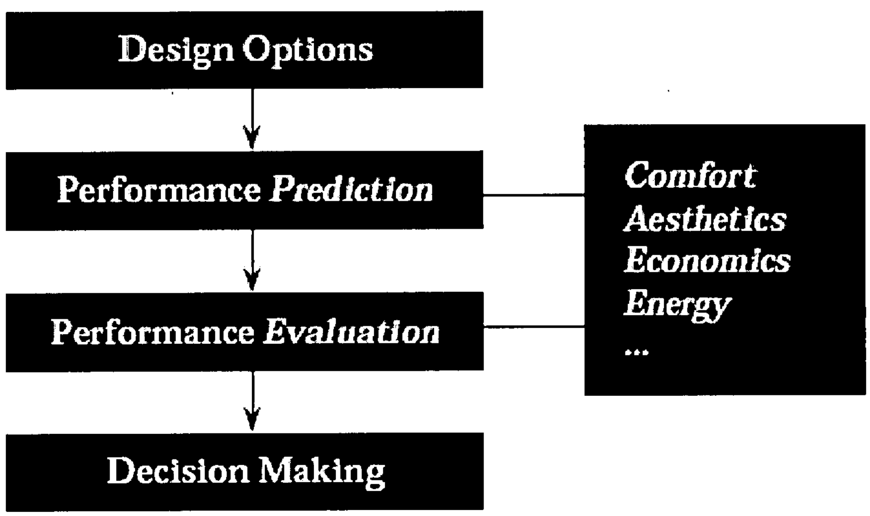


Figure 1. Building design decisions require performance prediction and evaluation with respect to multiple performance considerations.

Figure 6: BDA reference C: Figure 1

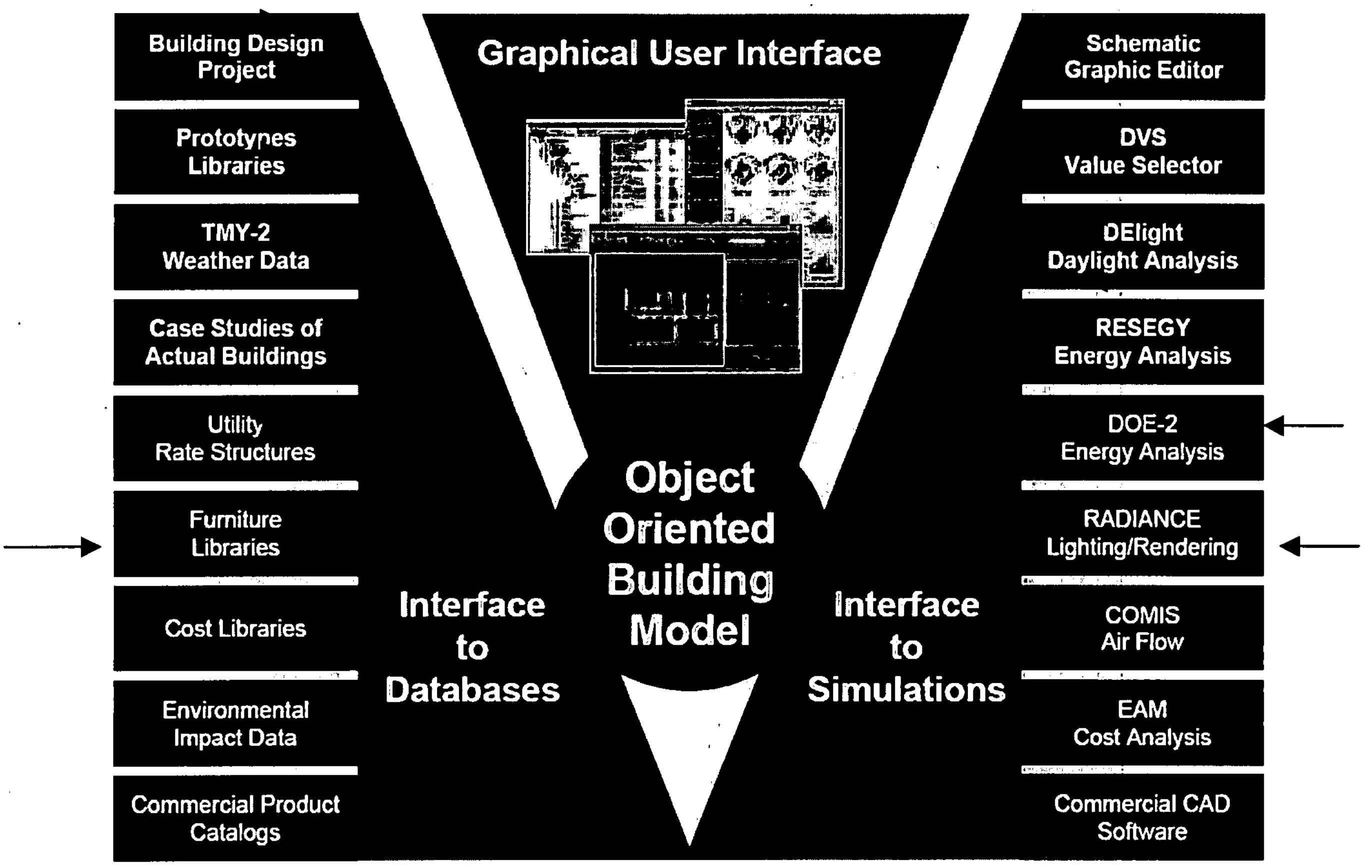


Figure 2. The Building Design Advisor is composed of a central data model that is linked to a graphical user interface and multiple simulation tools and databases.

Figure 7: BDA reference C: Figure 2

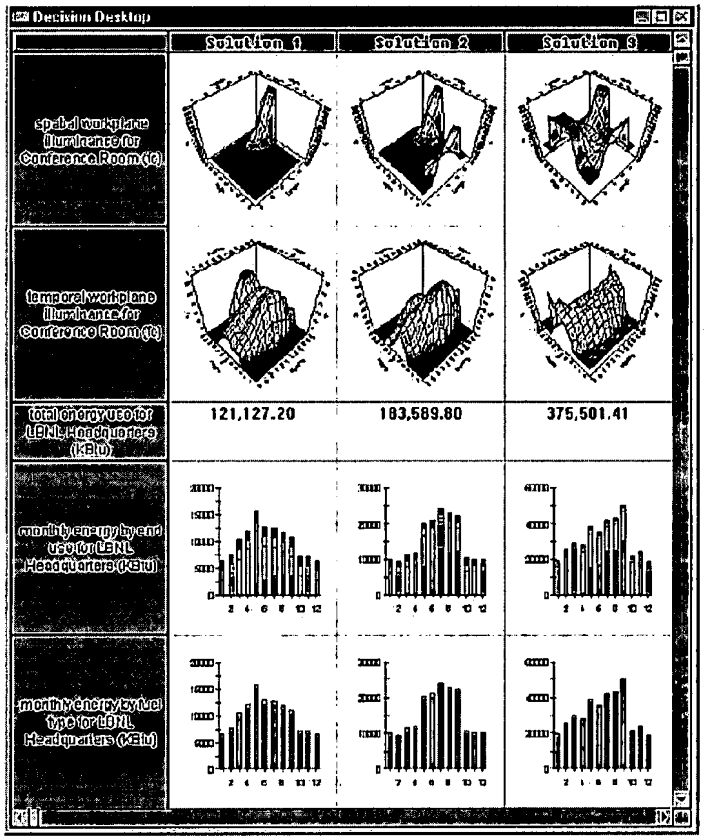


Figure 3. The Decision Desktop allows the user to compare multiple alternative designs with respect to any number of input and output parameters addressed by the simulation tools linked to the BDA.

Figure 8: BDA reference A: Figure 3

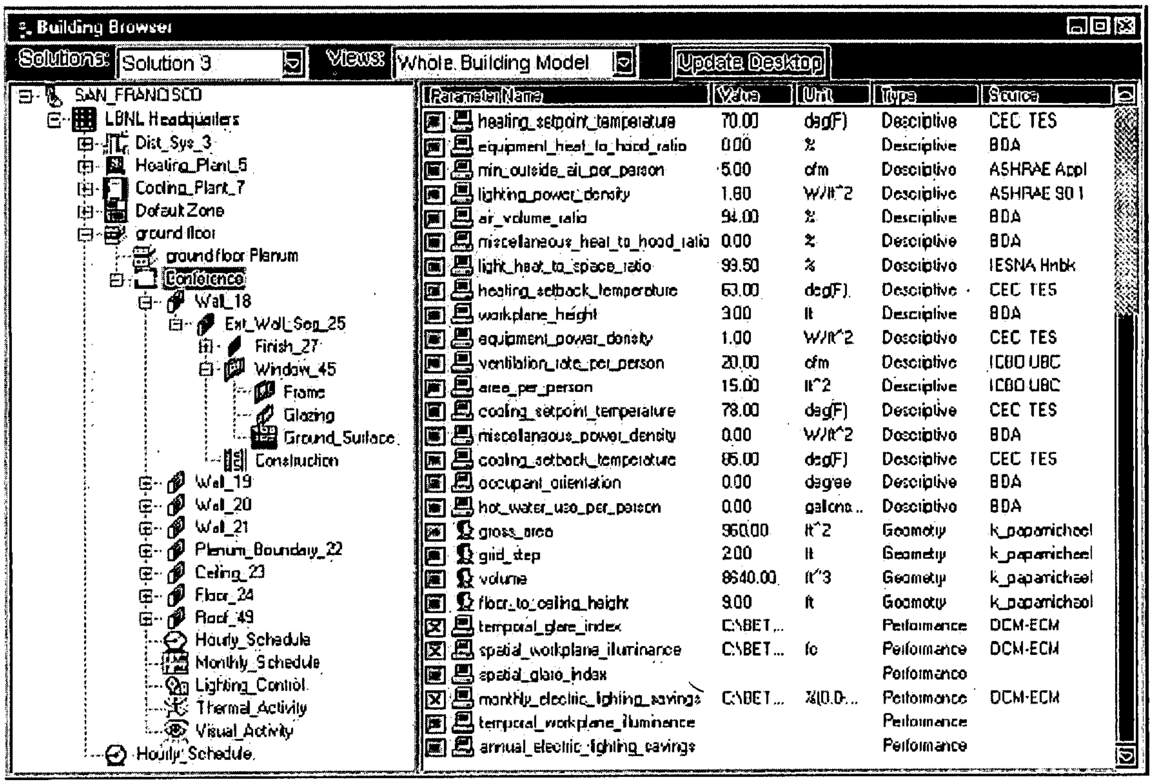


Figure 5. The Building Browser allows the user to quickly navigate through the object-based representation of the building and its context, and select any number of input and output parameters for display in the Decision Desktop.

Figure 9: BDA reference A: Figure 5

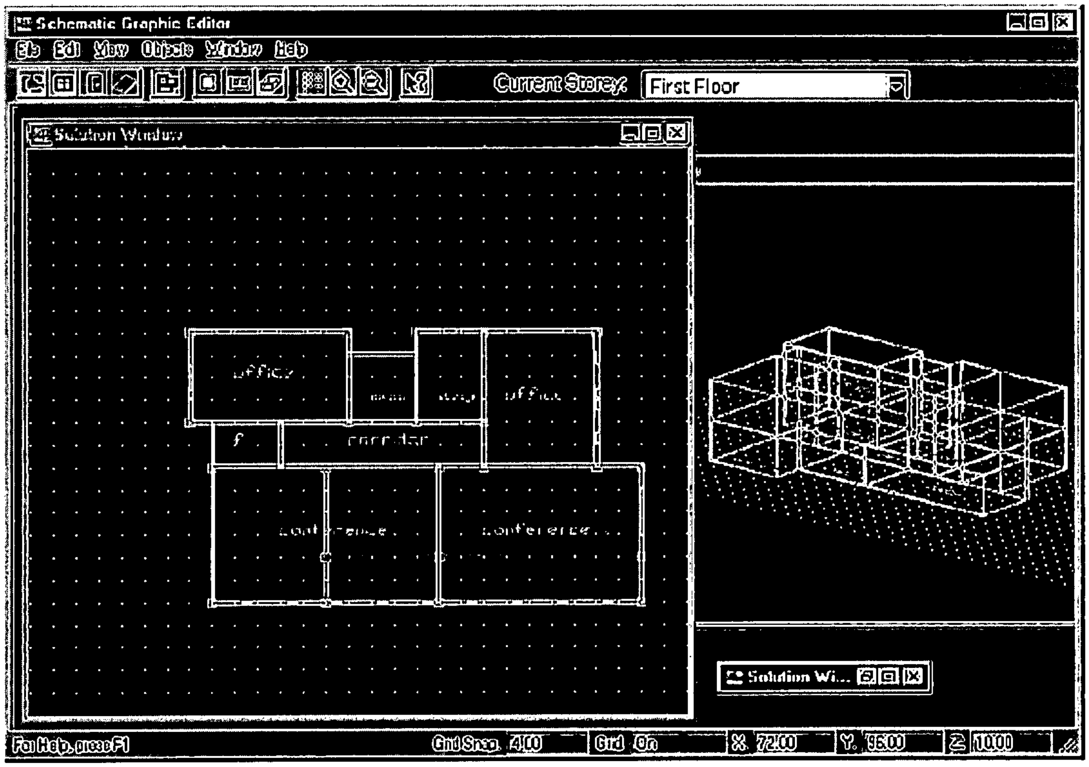


Figure 8. The Schematic Graphic Editor allows the user to draw and modify the geometry of building objects, and supports the display of multiple design alternatives, in their own windows.

Figure 10: BDA reference A: Figure 8

It would have been obvious to one skilled in the art at the time of the invention that the computer implemented method of selecting items for a project within criteria as taught by Wakelam et al. would have benefited from determining energy consumption of the project (structure) based on the selected set of items in view of the teachings of BDA; the resultant system/method providing more information regarding the project's (building/structure) performance characteristics during the design process (BDA: reference C: Paragraph 1, Page 2) .

8. Claims 39-41 and 81 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wakelam et al., U.S. Patent No. 6,859,768 in view of MECcheck Software User's Guide Version 3.0 (April 2000, MECcheck) as applied to claims 3 and 36 above and further in view of Bosch, Maria An Expert System for Cost-Effective Energy Efficiency Calculations (1996).

Regarding Claim 39 Wakelam et al. does not expressly teach code to decrease the UA value by a certain percentage, and code to determine another lowest cost set of items based on the decreased UA value as claimed.

MECcheck teaches adjusting (decreasing, increasing) the UA value as part of the design (selected items) trade-off analysis for determining a set of selected items that comply with the building codes (Max UA, Your UA, percent over/under compliance, etc.; Introduction: Pages 1, 4-5; Software Overview: Pages 1, 3-4, 15, 22; Paragraph 2, Page 8; Compliance Examples, Pages 27-30).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items within project criteria as taught by Wakelam et al. would have benefited from performing trade-off analysis between the plurality of project items/components (alternative designs; i.e. code to decrease the UA value by a certain percentage) in view of the teachings of MECcheck; the resultant system enabling designers to ensure their designs (alternative selections of building

materials/equipment/items) comply with building codes/standards (MECcheck: Introduction: Pages 1, 4-5).

Wakelam et al. and MECcheck do not expressly teach determining a lowest cost set of items based on the decreased UA value (changed project items/information) as claimed.

Bosch teaches identifying (selecting, presenting, recommending) a set of cost-effective (lowest cost) project items, in an analogous art of construction/building material selection/analysis, based on the iteratively analysis/trade-off analysis of a plurality of project values including but not limited to R values (R = 1/U) for the purposes of assisting designers in selecting the most cost effective and appropriate project designs (set of items; Page 23, Columns 1-2; Page 24, Column 1; Figure 1).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items within project criteria including the use of UA values as part of the performance evaluation as taught by the combination of Wakelam et al. and MECcheck would have benefited from selecting items having the lowest cost (most cost effective) in view of the teachings of Bosch; the resultant system enabling designers (architects, building decision-makers) to select the most appropriate (i.e. meet project criteria) and cost effective project items (Bosch: Page 23, Column 2, Paragraphs 1-2).

Regarding Claim 40 Wakelam et al. teach a system for selecting items for a project wherein updates to project information including criteria updates (schedules, cost, design changes, etc.) causes the system to update/redesign/remodel the project/structure, as discussed above. Wakelam et al. further teach that the system comprises at least one database having climate control equipment information (HVAC; Column 8, Lines 30-45; Column 11, Lines 1-24; Column 13, Lines 51-68; Column 14, Lines 1-4; Figures 2a, 2f).

Wakelam et al. does not expressly teach calculating energy consumption information based on the new lowest set of insulation and climate control as claimed.

MECcheck teaches evaluating the impact of insulation and climate control equipment on a project's performance and/or ability to comply with building codes in an analogous art of project performance analysis for the purposes of ensuring the selected set of items (design) complies with building codes/standards (Introduction: "A major focus of the code provisions is on the building envelope insulation and window requirements", Page 1; Step 3, Compliance Process, Page 4; Software Overview: Compliance Example, Pages 27-30).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items that meet a plurality of criteria as

taught by the combination of Wakelam et al. would have benefited from taking into account the effect of insulation in view of the teachings of MECcheck; the resultant system enabling users to ensure the selected project items comply with building energy codes including but not limited to codes requiring specific insulation/thermal performance values (MECcheck: Introduction: Page 1).

Regarding Claim 41 Wakelam et al. teach a system for selecting items for a project based on a plurality of building materials and systems specifications (properties) as well as performing cost comparisons and/or building model optimizations by iteratively generating multiple structure/building models (rattling the box; Column 13, Lines 22-33; Column 19, Lines 1-37; Figures 6a-6b).

Wakelam et al. does not expressly teach code to recalculate the UA value for the structure and to determine another lowest cost set of items based on the recalculated UA value as claimed.

MECcheck teaches code to recalculate the UA value for the structure, in an analogous art of project performance evaluation, for the purposes of evaluating and ensuring that the thermal performance of a building (Your UA, Max UA, percent over/under compliance, etc.) complies with building energy codes (Introduction: Page 5, Bullet 1; Software Overview: Pages 1, 3-4, 15; Appendix B: Pages 1-2, Definitions:

Page 3) as well as performing trade-off analysis based on the UA and other project item/component values as discussed above.

It would have been obvious to one skilled in the art at the time of the invention that the system for selecting items for a project as taught by Wakelam et al. would have benefited from code to recalculate the UA value for the structure during each of the design iterations/revisions in view of the teachings of MECcheck; the resultant system enabling users to evaluate the project's overall energy performance and/or to ensure that the selected set of items for the project comply with building energy codes (MECcheck: Introduction: Pages 1, 4-5).

Wakelam et al. does not expressly teach project items having the lowest cost as claimed.

Bosch teaches identifying (selecting, presenting, recommending) a set of cost-effective (lowest cost) project items, in an analogous art of construction/building material selection/analysis, based on the iteratively analysis/trade-off analysis of a plurality of project values including but not limited to R values (R = 1/U) for the purposes of assisting designers in selecting the most cost effective and appropriate project designs (set of items; Page 23, Columns 1-2; Page 24, Column 1; Figure 1).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items utilizing a plurality of project item values including but not limited to UA values that meet a plurality of performance criteria including but not limited to cost as taught by the combination of Wakelam et al. and MECcheck would have benefited from selecting and presenting (recommending, identifying, etc.) project elements having the lowest cost (i.e. most cost-effective) in view of the teachings of Bosch; the resultant system enabling designers (architects, building decision-makers) to select the most appropriate (i.e. meet project criteria) and cost effective project items (Bosch: Page 23, Column 2, Paragraphs 1-2).

Regarding Claim 81 Wakelam et al. does not expressly teach that the first project value is an energy baseline level as claimed.

MEC teaches that one of the project values is an energy baseline (standard, code, acceptable level, minimum requirement, etc.) which building designs (set of selected components) must minimally meet, in an analogous art of project performance analysis for the purposes of ensuring designs/selected set of components meet baseline/required performance levels (Overview: Pages 1, 4-5).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items/components within project criteria as taught by the Wakelam et al. would have benefited from identifying an energy

baseline in view of the teachings of MECcheck; the resultant system enabling building decision-makers to compare their designs with the baseline and ensure the meet or exceed the baseline requirements (MECcheck: Overview: Pages 1, 4-5).

9. Claims 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wakelam et al., U.S. Patent No. 6,859,768 as applied to claim 3 above and further in view of Khan, U.S. Patent Publication No. 2002/0032611.

Regarding Claim 27 Wakelam et al. teach a computer implemented method of selecting items for a project within criteria wherein the system/method generates all of the "documents necessary to construct the building" (Column 4, Lines 5-14) including complete building design, graphic estimate sheet, material lists and material requisitions (Column 5, Lines 8-13; Column 13, Lines 10-21; Column 14, Lines 29-55; Column 17, Lines 63-68).

While the utilization of "bill of materials", take-off sheets/analysis are old and very well known in the construction industry and while Wakelam et al. expressly teaches determining the types and quantities of items needed to complete the project (building), even going so far as ordering the necessary materials from suppliers/vendors, Wakelam et al. does not expressly teach the phrase "*bill of materials*" as claimed.

Kahn teaches generating a bill of materials (BOM) based on a selected set of items in an analogous art of selecting items for a project within project criteria/constraints (Paragraphs 0022, 0039, 0045, 0050; Figure 2) for the purposes of providing a "next-generation bill of material and materials management system that reads live dynamic data from the multiple vendors to make a better more accurate cost effective decision on ordering the parts or filling needed inventory" (Paragraph 30) as well as created a common bill of material format that can be used to find and compare suppliers/vendors (Paragraphs 0024-0026).

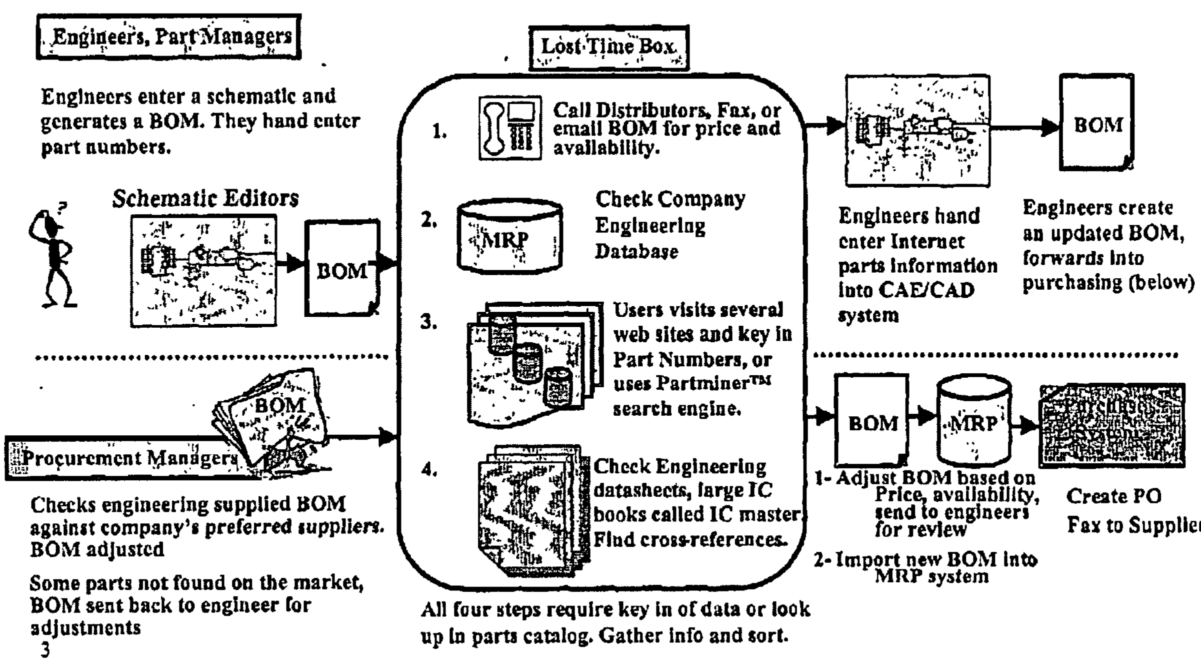


Figure 11: Kahn

It would have been obvious to one skilled in the art at the time of the invention that the computer implemented method of selecting items for a project within criteria as taught by Wakelam et al. with its generation of complete project designs, material lists and integration with suppliers would have benefited from utilizing and generating a bill of materials using well known techniques/practices (e.g. take off analysis) in view of the teachings of Khan; the resultant system/method enabling users to identify suppliers/vendors having the best possible item prices based on the generated BOM (Khan: Paragraphs 0026, 0030).

Regarding Claim 28 Wakelam et al. teach a computer implemented method of selecting items for a project within criteria includes displaying the total amount of items required to construct the project (Column 4, Lines 1-14; Column 5, Lines 6-10; Column 9, Lines 8-30; Column 12, Lines 11-24, Column 13, Lines 6-34; Column 14, Lines 30-42).

Regarding Claim 29 Wakelam et al. teach a computer implemented method of selecting items for a project within criteria further comprising providing information on suppliers/vendors based on the project design (building configuration, design, model, etc.; Column 4, Lines 1-14; Column 5, Lines 5-15; Column 17, Lines 63-68).

Wakelam et al. does not expressly teach displaying information on suppliers based on the bill of materials as claimed.

Kahn teaches providing information on suppliers based on the bill of materials in an analogous art of selecting items for a project (Abstract; Paragraphs 0022, 0039, 0045, 0050; Figure 2) for the purposes of automating the bill of materials sourcing processing (Paragraphs 0028, 0029) as well as enabling users to "better communicate design and procurement data of companies with suppliers (Paragraph 0030, 0050).

It would have been obvious to one skilled in the art at the time of the invention that the computer implemented method of selecting items for a project within criteria as taught by Wakelam et al. would have benefited from providing information on suppliers based on a bill of materials for the project in view of the teachings of Kahn; the resultant system/method thereby enabling users to "better communicate design and procurement data of companies with suppliers" (Kahn: Paragraph 0030, 0050).

10. Claim 80 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wakelam et al., U.S. Patent No. 6,859,768 as applied to claim 2 above and further in view of Carroll, William Leslie, Energy and Economic Optimization of Conduction-Dominated Buildings (1986).

Regarding Claim 80 Wakelam et al. does not expressly teach that a project criterion is an energy budget as claimed.

Carroll teaches budgets for projects, including energy budgets, wherein the budgets provide a mechanism for defining design constraints and/or considerations for the project in an analogous art of selecting items for a project (Abstract; Section 2.6.2, Page 31; Section 5.2.4, Page 129):

- "In performance standards, only the maximum allowable energy consumption ("energy budget") is specified (usually based on building size, type, climate, etc.) without specifying in detail how an individual building must be designed to meet this requirement. Thus any building design that can be shown to comply with the energy budget requirement is acceptable under the standard...Thus the setting of optimal budget levels for performance standards is an important economic and policy issue.", Paragraph 1, Page 2; and

- "Energy budget levels in proposed federal building energy performance standards were developed by enumerative determination of life-cycle cost...", Paragraph 1, Page 8.

It would have been obvious to one skilled in the art at the time of the invention that the system and method of selecting items for a project within criteria including costs/economics as taught by Wakelam et al. would have benefited from enabling users to define budget constraints for the project including but not limited to energy budgets in view of the teachings of Carroll; the resultant system ensuring projects/structures meet the end-customer's/building decision-makers requirements/constraints (e.g. building energy budget).

11. Claim 83 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wakelam et al., U.S. Patent No. 6,859,768 in view of MECcheck Software User's Guide Version 3.0 (April 2000, MECcheck) as applied to claim 34 above and further in view of Carroll, William Leslie, Energy and Economic Optimization of Conduction-Dominated Buildings (1986).

Regarding Claim 83 Wakelam et al. does not expressly teach that a project criterion is an energy budget or calculating an energy baseline as claimed.

MECcheck teaches utilizing a plurality of project items/components to meet an energy baseline (requirement, code, standard) including but not limited to the use of insulation to meet a building code wherein the building decision-maker generates an predicted energy baseline (rating, compliance report, etc.) demonstrating the project's compliance to the building energy code (compliance report; Software Overview: Pages 1-3; Compliance Example Pages 27-30).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items/components within criteria as taught by Wakelam et al. would have benefited from utilizing insulation to meet/exceed an energy baseline in view of the teachings of MECcheck; the resultant system being capable of demonstrating a project's compliance with building codes/standards (MECcheck: Software Overview: Pages 1-3).

Wakelam et al. and MECcheck do not expressly teach that energy budget is a criterion as claimed.

Carroll teaches budgets for projects, such as energy budgets, wherein the budgets provide a mechanism for defining design constraints and/or considerations for the project in an analogous art of selecting items for a project (Abstract; Section 2.6.2, Page 31; Section 5.2.4, Page 129):

- "In performance standards, only the maximum allowable energy consumption ("energy budget") is specified (usually based on building size, type, climate, etc.) without specifying in detail how an individual building must be designed to meet this requirement. Thus any building design that can be shown to comply with the energy budget requirement is acceptable under the standard...Thus the setting of optimal budget levels for performance standards is an important economic and policy issue.", Paragraph 1, Page 2; and

- "Energy budget levels in proposed federal building energy performance standards were developed by enumerative determination of life-cycle cost...", Paragraph 1, Page 8.

It would have been obvious to one skilled in the art at the time of the invention that the system and method of selecting items for a project within criteria including costs/economics as taught by the combination of Wakelam et al. and MECcheck would

have benefited from enabling users to define budget constraints for the project including but not limited to energy budgets in view of the teachings of Carroll; the resultant system ensuring projects/structures meet the end-customer's/building decision-makers requirements/constraints (e.g. building energy budget).

12. Claims 86 and 88 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wakelam et al., U.S. Patent No. 6,859,768 as applied to claim 32 above and further in view of Pray et al., U.S. Patent No. 4,885,694.

Regarding Claim 86 Wakelam et al. teach a computer-implemented method of selecting items for a project within criteria further includes contractor (labor, subcontractor, supplier, vendor, staff, personnel, etc.) including installation schedule information and costs (Column 3, Lines 35-57; Column 9, Lines 32-65; Column 12, Lines 11-24; Column 13, Lines 10-15), as discussed above.

Wakelam et al. further teaches updating scheduling information (e.g. activities), cost and other project information in response to schedule changes (Column 3, Lines 47-63; Column 6, Lines 1-7; Column 5, Lines 3-15; Column 9, Lines 32-65; Column 10, Lines 1-5) and that the system/method utilizes well known project management tools/systems including but not limited to project management tools from Primavera (Column 7, Lines 53-63).

Wakelam et al. does not expressly teach determining delay costs based on the installation schedule as claimed.

Pray et al. teach determining and updating an installation schedule in an analogous art of selecting sets of project items that meet project criteria for the

purposes of estimating and managing project costs (Column 2, Lines 46-68; Column 7, Lines 5-45; Column 12, Lines 43-68).

More generally Pray et al. teach contractor (labor, worker, staff, etc.) scheduling information, determining an installation (labor, build, development, etc.) schedule and associated costs for the selected set of items (e.g. project design) based on the contract schedule information and installation costs (Column 2, Lines 46-68; Column 3, Lines 1-21; Column 4, Lines 50-68; Column 7, Lines 5-44; Column 8, Lines 21-49; Column 12, Lines 43-68; Column 13, Lines 25-39; Column 17, Lines 42-61; Figure 14) in an analogous art of selecting items for a project within a criteria (Column 1, Lines 5-25) for the purposes of generating proposals, bids, bill-of-materials and other project documentation as well as to enable the project/cost management of the project (Column 2, Lines 46-68).

Additionally Pray et al. teach a system and method of selecting items of a project within a criteria comprising inputting project information data, determining/selecting a set of items that meet the project criteria and displaying the selected items (program sizing, substantially automated system design, etc.; Column 1, Lines 24-27; Column 12, Lines 10-15; Column 13, Lines 65-68; Column 14, Lines 19-37).

Wakelam et al. and Pray et al. do not expressly teach determining the costs of delays as claimed.

Official notice is taken that determining the cost of delays is old and very well known in construction project management for providing project managers information related to the status of the project and/or the impact of delays and other events on things such as the project budget/schedule.

Support that determining the cost of delays is old and very well known in construction project management for providing project managers information related to the status of the project and/or the impact of delays and other events on things such as the project budget/schedule can be found in at least the following reference Primavera Project Planner – Planning and Control Guide Version 3.0 (1999): Paragraph 1, Page 17; Pages 32, 41, 72, 194, 198, 215.

It would have been obvious to one skilled in the art at the time of the invention that the system and method for selecting project items within criteria as taught by the combination of Wakelam et al. and Pray et al. would have benefited from deterring the cost of delays to the installation/construction/building of the selecting items/project in view of the teachings of official notice; the resultant enabling users to monitor the impact of delays on project schedules and/or budgets.

Regarding Claim 88 Wakelam et al. does not expressly teach charging a fee as claimed.

Pray et al. teach charging a fee (job bill processing, Column 1, Lines 20-22; Column 3, Lines 9-15; Column 8, Lines 30-35; Figure 8) in an analogous art of selecting sets of items for a project within criteria for the purposes automatically billing customers (Column 3, Lines 9-15).

It would have been obvious to one skilled in the art at the time of the invention that the building performance evaluation system as taught by Wakelam et al. would have been benefited from charging a fee for the utilization of the system in view of the teachings of Pray et al.; the resultant system compensating individuals and/or organizations for their products/services (Pray et al.: Column 3, Lines 9-15).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Gu, Qun, A Knowledge-Based System for Energy Efficient Building Design (1999), teaches a computer implement method (Building Energy Code Advisor, BECA) of selection items for a project within a criteria, the method comprising the steps of inputting project information including project criteria (energy codes, building design/layout, etc.); determining sets of items based on the project information that meet the criteria (i.e. energy/building code compliance); calculating for each set of items a set value and displaying to a user the selected set of items that meet the project criteria.

Gu further teaches the well-known utilization of computer systems for energy/building code compliance checking, building energy performance evaluation, and computer aided building design.

Gu further teaches several well-known methods for achieving code compliance including building *energy cost budget* and the system/component methods as shown below.

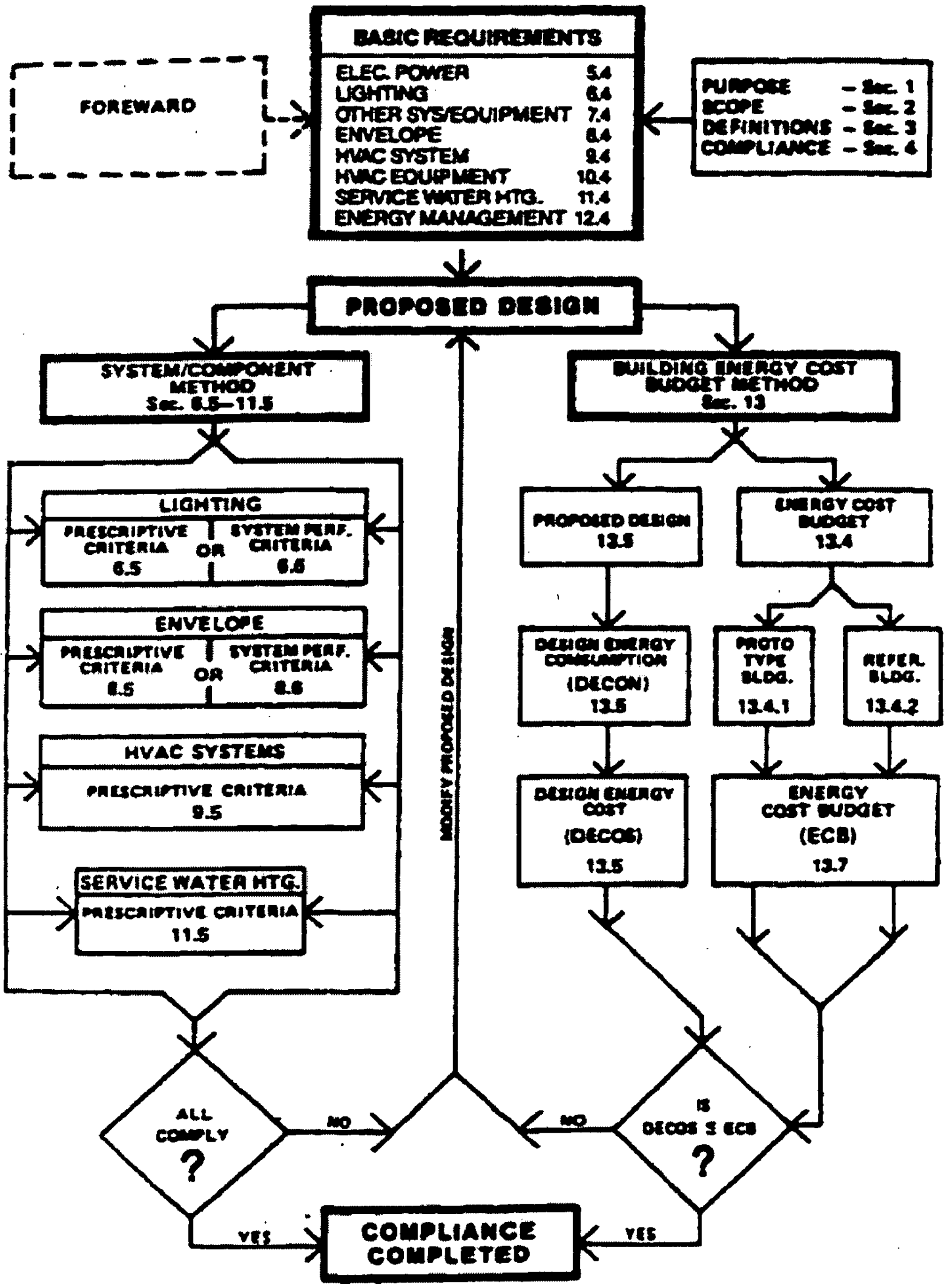


Figure 2-1: Alternative Methods of Achieving Compliance in ASHRAE Standard [ASHRAE 1989]

- MECcheck Trade-Off Worksheet User's Guide (2000), teaches a computer implement method of selection items for a project within a criteria, the method comprising the steps of inputting project information including project criteria (energy codes, building design/layout, etc.); determining sets of items based on the project information that meet the criteria (i.e. energy/building code compliance); calculating for each set of items a set value (trade-off worksheet, UA value – proposed, required) and displaying to a user the selected set of items that meet the project criteria.

MECcheck

Trade-Off Worksheet

CABO Model Energy Code (MEC)

Enforcement Agency:
Permit #
Checked By
Date

Builder Name CAREFUL BUILDERS, INC. Date 12/12/00
Builder Address 120 "W" ST., GREENSBORO, NORTH CAROLINA 27411
Building Address 1010 CONSTRUCTION AVE., GREENSBORO, N.C.
Zone # 8 MEC Edition 1995
Submitted By JOHN DOE CAREFUL Phone Number 704-321-9445

PROPOSED | **REQUIRED**

U-factors and F-factors can be found in Tables 1 through 10.

Required U-factors can be found in Table 11.

Ceilings, Skylights, and Floors Over Outside Air

Description	Insulation R-Value	U-Factor	x Area	= UA
Ceiling w/Attic	R-38	0.030	729 ft²	21.9
Floor Over Outside Air	R-30	0.033	32 ft²	1.1
Skylight	–		ft²	
Ceiling, Vaulted	R-30	0.035	592 ft²	20.7
			ft²	
		Ceilings: Total Area	1353 ft²	

Required U-Factor	x Area	= UA
0.036	1353 ft²	48.7

Walls, Windows, and Doors

Description	Insulation R-Value	U-Factor	x Area	= UA
Wall w/ Sheath	R-13+6	0.060	1339 ft²	80.3
Window	–	0.45	204 ft²	91.8
Door Entry	–	0.54	20 ft²	10.8
Sliding Glass Door	–	0.61	84 ft²	51.2
Wall w/o Sheath	R-13	0.082	258 ft²	21.2
Door/Garage	–	0.35	18 ft²	6.3
			ft²	
		Walls: Total Area	1923 ft²	

Required U-Factor	x Area	= UA
0.16	1923 ft²	307.7

Floors and Foundations

Description	Insulation Depth	Insulation R-Value	U-Factor or F-Factor	x Area or Perimeter	= UA
Floor Over Unconditioned		R-19	0.047	938 ft²	44.1
Basement Wall				ft²	
Unheated Slab	24 in.	R-8	0.78	82 ft	64.0
Heated Slab	in.			ft	
Crawl Wall	in.			ft²	

Required U-Factor or F-Factor	x Area or Perimeter	= UA
0.05	938 ft²	46.9
	ft²	
0.82	82 ft	67.2
	ft	
	ft²	

Total Proposed UA 413.4

Total Required UA 470.5

Total Proposed UA must be less than or equal to the *Total Required UA*.

Statement of Compliance: The proposed building design represented in these documents is consistent with the building plans, specifications, and other calculations submitted with the permit application. The proposed building has been designed to meet the requirements of the CABO Model Energy Code.

John Doe Careful — Builder/Designer
Careful Builders, Inc. — Company Name
12/12/00 — Date

Figure 7. Completed Trade-Off Worksheet

- Johns Manville Launches Insulate Now! Initiative (2001), teaches Johns Manville's initiative to assist contractors and home owners determine the proper amount of insulation for their homes including a set of tools wherein "The tools were defined to help support contractor's recommendations on how to improve a home's energy efficiency."

- Maor, Conceptual design and selection of HVAC&R systems by combining knowledge based expert system with a building energy simulation program (2002), teaches a computer implemented system and method for selecting items for a project within criteria.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott L. Jarrett whose telephone number is (571) 272-7033. The examiner can normally be reached on Monday-Friday, 8:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hafiz Tariq can be reached on (571) 272-6729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Scott Jarrett
Asst. Examiner
August 22, 2007

Romain Jeanty
Primary Examiner
Art Unit 3623